Issue 174
PS
1967 Series
THE PREVENTIVE MAINTENANCE MONTHLY
THINK IT'S BAD NOW... WAIT TILL THE DRY SEASON STARTS!
YES, THESE NORMAL ALLA TIME, JOE!
WHAT'S SO UNUSUAL ABOUT THESE CONDITIONS?
HIGHWAY Nº 19
VIETNAM
ENTIRE ISSUE
WILL EISNER

WHERE NORMAL CONDITIONS ARE UNUSUAL...

PREVENTIVE MAINTENANCE MUST KEEP PACE.

So, the **USUAL** routine chores must become an **UNUSUAL** program of care and constant checking. **USUAL** things like lubes, seals, paint, coolant, cleanliness, tight connections and careful handling become the **UNUSUAL!** So . . .

GIVE YOUR EQUIPMENT UNUSUAL CARE!!

SEE THE "UNUSUAL CONDITIONS" SECTION IN YOUR OPERATOR'S MANUAL

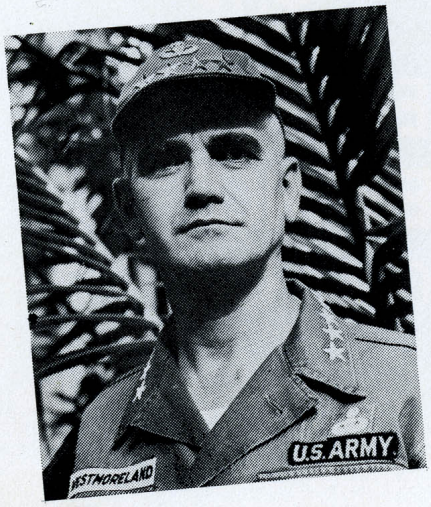
Issue 174

P.S

1967 Series

THE PREVENTIVE MAINTENANCE MONTHLY

P★M



GEN. W. C. WESTMORELAND
Commanding General
U. S. Military Assistance
Command Vietnam

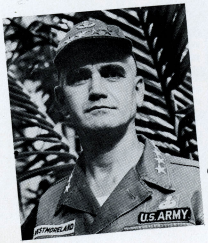
"Superior mobility, firepower and fighting men are our greatest assets in Vietnam. They are the reasons why battlefield victory is a certainty. The greatest of these assets are the men, of course; but the firepower and mobility are essential, and we can lose our advantage suddenly and finally if our fighting equipment is not kept in top-notch condition.

Lives depend upon quick reaction and dependable hardware, whether in the rice paddy, tropical jungle, mountain or coastal plain areas of Vietnam. We never have encountered more difficult combat conditions anywhere. The alternating monsoon seasons and the abrasive combination of heat, dust, rain and mud add to the probability that equipment will fail at precisely the wrong moment in battle unless we take care of every piece of equipment—from the UH-1D to the torque wrench.

Our equipment must be given the finest possible care. It must be operated properly. It must be cleaned, lubricated and adjusted regularly. It must be repaired promptly and correctly.

Never before in the history of combat has good preventive maintenance been so important—so absolutely essential—to the U.S. fighting men and their allies."

PM IS A MUST!!



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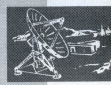

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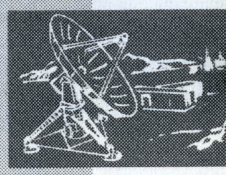

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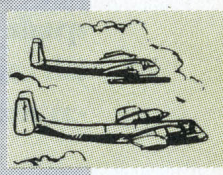

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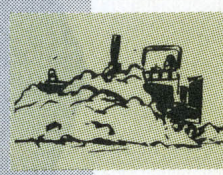

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FIELD-GROWN ADVICE ON YOUR M102 HOWITZER

Your M102 105-MM lightweight towed howitzer's sure throwing heavyweight punches where they count.

But, here're some gentle reminders to avoid certain PM goofs that've been known to cramp its fighting style at times. You Chiefs of Smoke could do worse than to get every guy in your crew to look 'em over careful-like and then take the pledge.

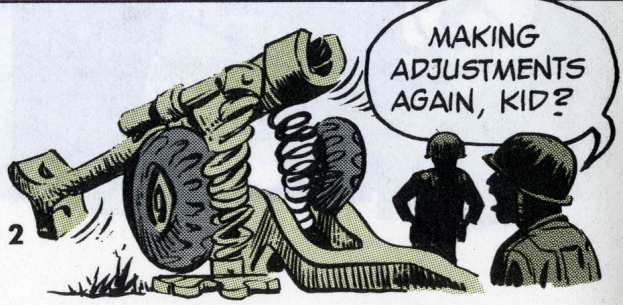
Like:

DRY FILM LUBRICANT:

- Trunnions
- Firing Platform pivot
- Wheel supports
- Firing mechanism
- Variable recoil mechanism pivot points

MADE OF PLASTIC:

- Drawbar bushings
- Cradle gun ways



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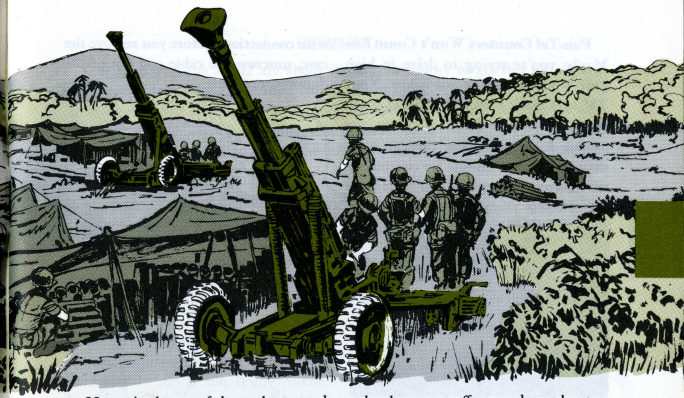

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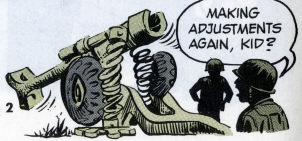


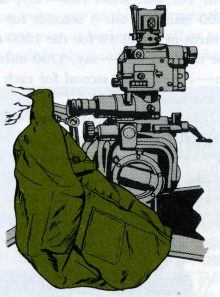
Not a single one of these places needs lubing—and you'd better not forget it! In fact, if you put oil or grease on 'em, it'll mess up the dry film lubricant and this'll collect dust and grit that'll chew out the parts.

Just keep all these parts real clean with Cleaning Compound (FSN 7930-395-9542 . . . 1 pt). Be positive you never clean 'em with anything that contains an oil base.

FIRE CONTROL EQUIPMENT

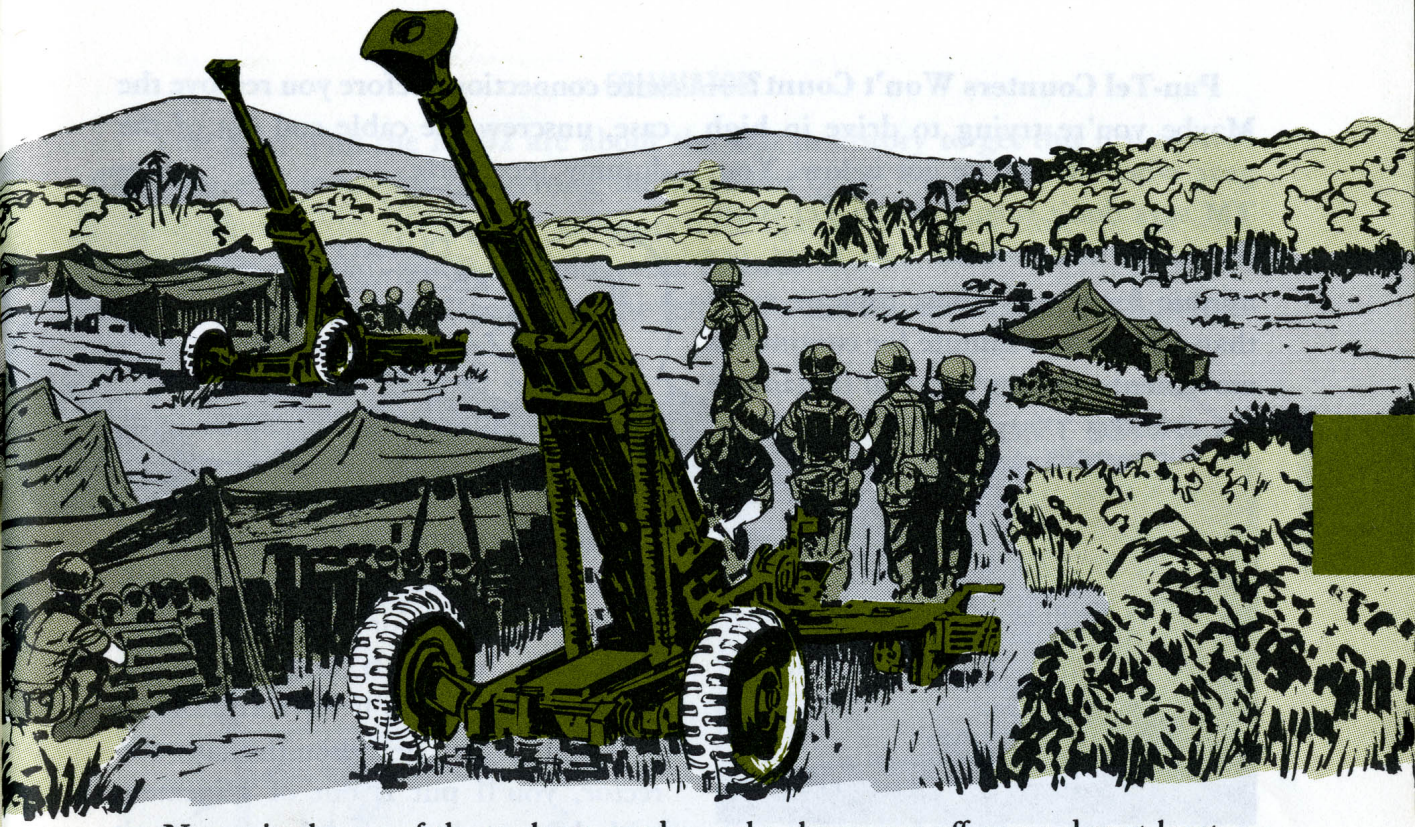
Condensation Control—Never make the mistake of believing that your scopes and quadrant are protected when you put the covers on 'em. Sure, these plastic-type covers do a good job of keeping rain, fog, dust and the like off these delicate pieces . . . but they also create one heckuva problem with condensation.

A lot of section chiefs find this a good way to fight it: Detail a good man to take the covers off every day at least . . . dry the covers . . . wipe all the scopes and mounts real dry . . . give a sharp look that no moisture's leaking into the counters and windows . . . and then replace the covers.



KEEP COVERS ON BUT CHECK DAILY FOR CONDENSATION

MORE



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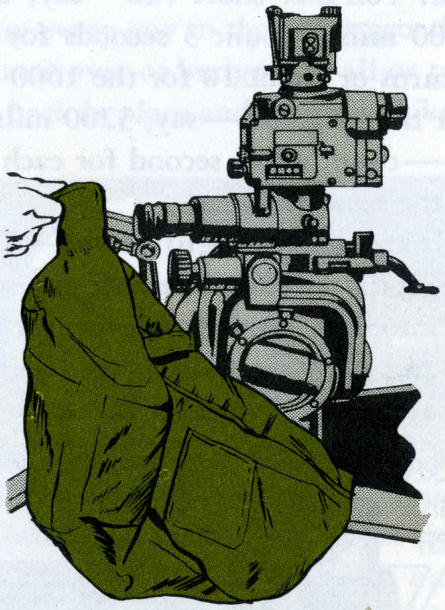
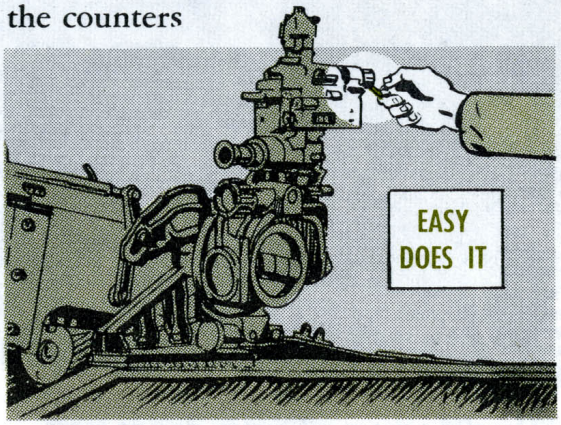


KEEP COVERS ON BUT
CHECK DAILY FOR CONDENSATION

PS MORE

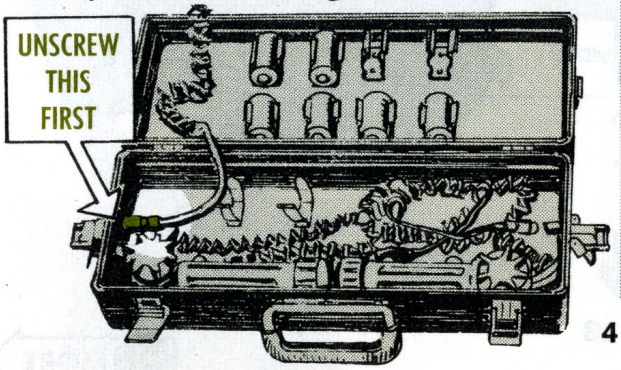
Pan-Tel Counters Won't Count? — Maybe you're trying to drive in high gear when all you've got is low. Your TM says don't turn the Pan-Tel counter crank faster than 150 turns per minute for a very short time or more than 100 turns a minute for continuous movement. Otherwise, you'll damage the counters



So, slow down, Gunner! The sight you save might be your own.

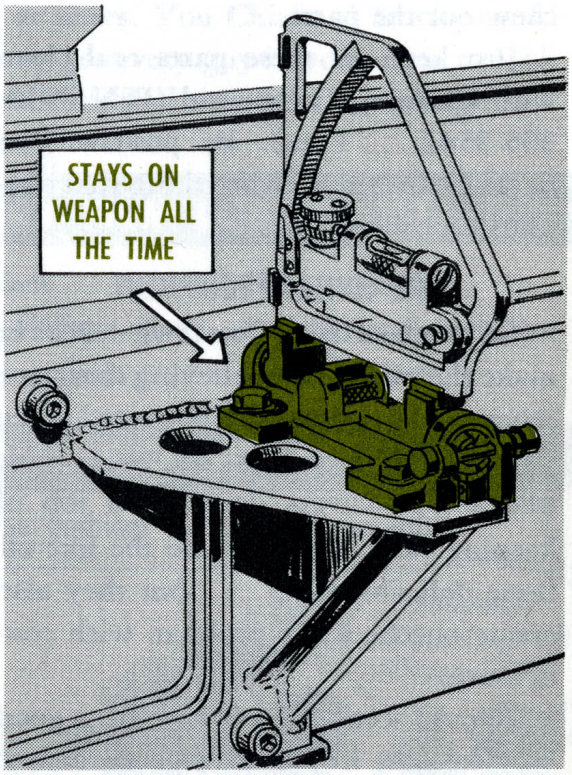
Each turn of the handle moves the sight head and counters 100 mils, right? OK, so here're the safe speed limits for you: For that short run—say, up to 1600 mils—count 3 seconds for each 2 turns or count 10 for the 1600 mils; For the long run—say, 3200 mils and up—count a full second for each turn of the handle.

Instrument Lights Case—Don't forget the dummy receptacle gets screwed into the container. Never just reach in and grab the battery case and pull away. You'll damage the cable and wire connection. Before you remove the case, unscrew the cable end out of the dummy receptacle.



Cant Corrector—Leave the cant corrector on the weapon—always. Never take it off for cleaning or anything else. You just might lose the shims and then you'll have trouble.

If you disturb or loosen the cant corrector, you'll put it out of alinement with the trunnion—and then you won't get a correct reading with a gunner's quadrant. If this happens, your weapon would have to go to Depot for realinement.

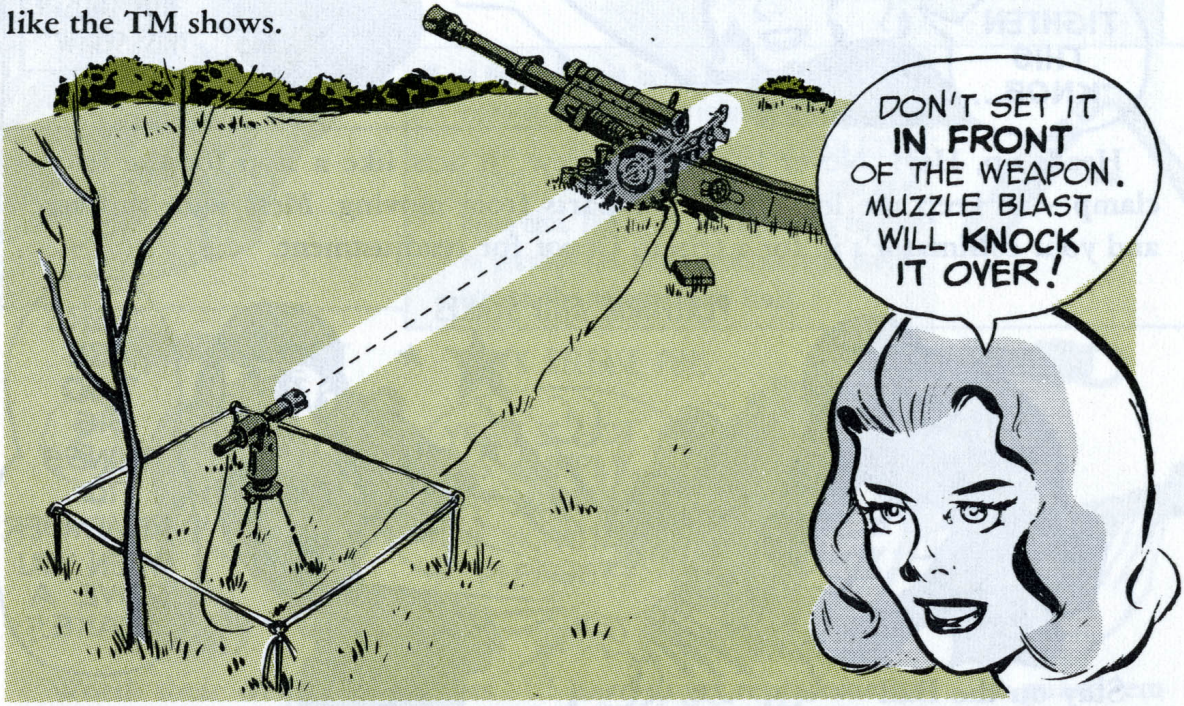


COLLIMATOR

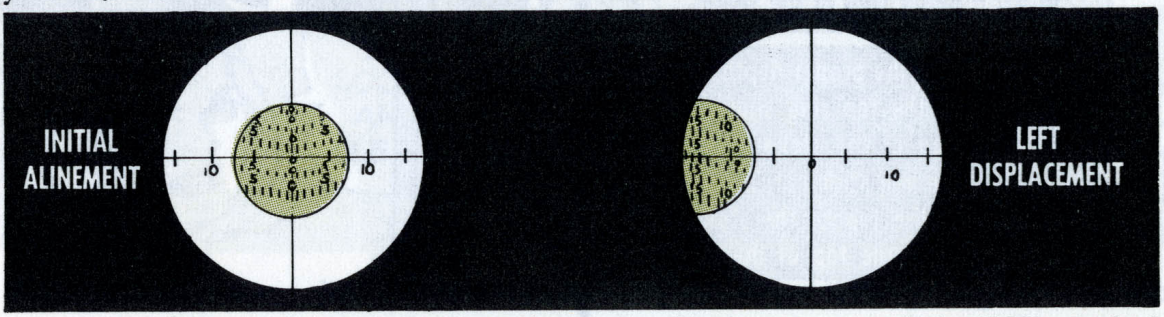
You guys with the M102 are about the first in history to get this fire control aid. Here're some tips for getting the most out of it:

Remember, the cover's got to be open for operation. If you close the lid with the cable installed, you'll slice the cable in two.

Always set up the collimator to the left and a little to the rear of the howitzer like the TM shows.



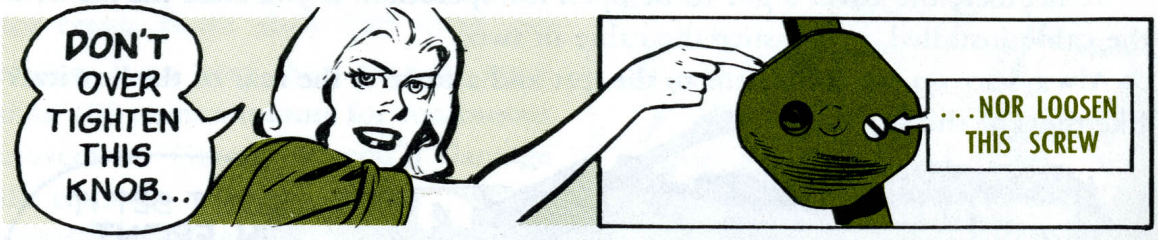
Put a "fence" (rope, tape or something) around the collimator to protect it from big feet—especially after dark. Make sure every guy in the outfit gets this straight: If you accidentally knock the collimator over or budge it at all or trip over a wire, report it pronto. Don't just set it back in place and forget it. Likely you knocked it 100 mils or more off course.



You, Gunner—when you're correcting for displacement and the "O" vertical line of the collimator is not visible, make real sure you place the Pan-Tel sight number on the correct side of the "O" line. F'rinstance, if the collimator numbers are increasing up and to the left, select a number on the Pan-Tel which is to the left of the Pan-Tel vertical line. Then superimpose it over a corresponding number on the collimator.

P.S. MORE

Watch out you don't over-tighten the leveling or elevating clamping knobs on the collimator or the three leg clamps. They should be just snug enough to hold, but too much pressure will damage the threads. Incidentally, all of these clamps have 2 holes, but only one has a visible screw head.

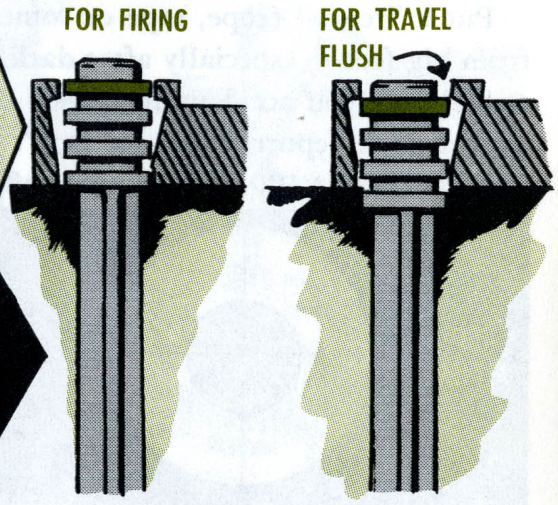


Heads up, Hey! Never loosen the screw. It acts like a stop for the friction clamp—to keep the legs and other parts from moving. Mess with this screw and your collimator's in for a trip to Depot for readjustment.

Stay on the Ball—

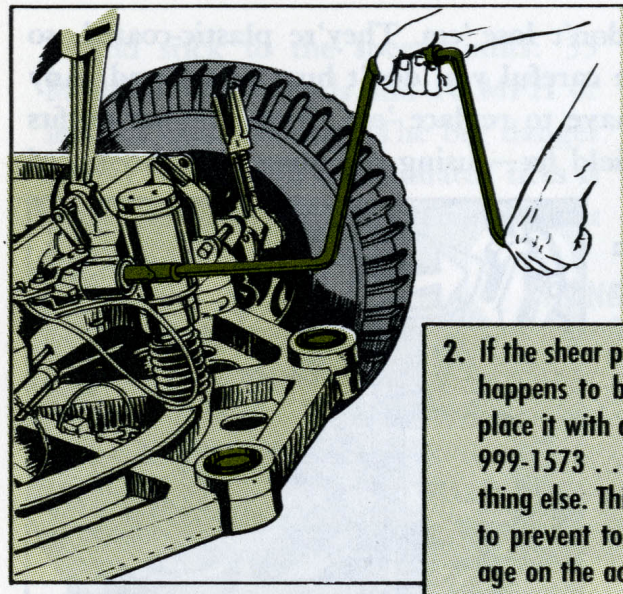
1. Don't hit anything but the stake. Especially be careful not to hit the elevation mechanism, the suspension lock bracket or the actuator assembly. Traverse the weapon to get a better shot at the stakes.

2. Drive it in to the proper depth. For firing, this means the top ring should be flush with the top of the stake hole. The top of the stake will stick out. Before moving out, punch the top of the stake so that it's flush with the top of the stake hole.



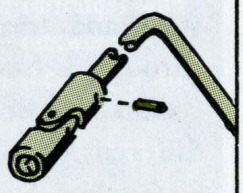
When you're emplacing your weapon, be sure you drive in all 8 stakes, not just some of 'em. When you're firing, try to maintain the full depth of the stakes. This means you may have to doublecheck 'em every so often. Sometimes frequent repositioning is needed in soft soil.

And when you're ready to pull up stakes to move on, be sure to remember these couple things:

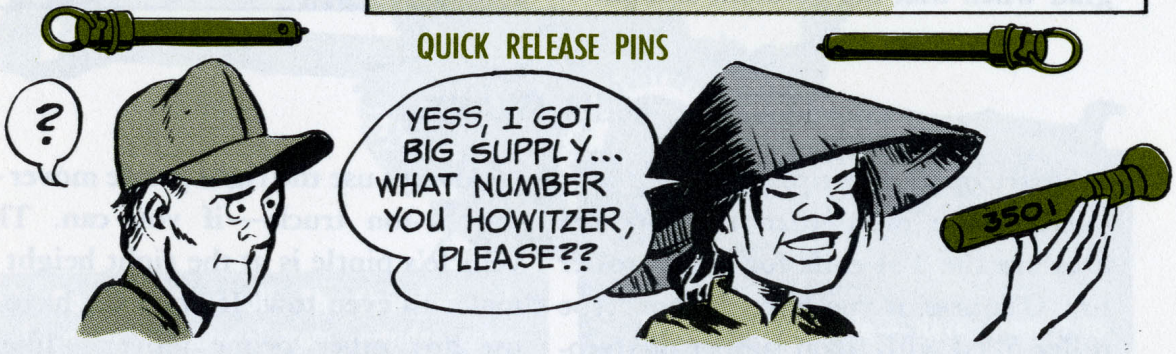


1. Never try to remove the stakes by jacking up the platform. Make sure the stakes are punched down and loose before you raise the platform. If this won't work, remove the platform and then take up the stakes. Para 22 of your -12 TM has some good scoop on the whole deal.

2. If the shear pin in the actuator hand crank happens to bust, be mighty sure you replace it with another shear pin (FSN 5315-999-1573 . . . 8430313). Never use anything else. This shear pin's a safety feature to prevent too much pressure and breakage on the actuator gear train.



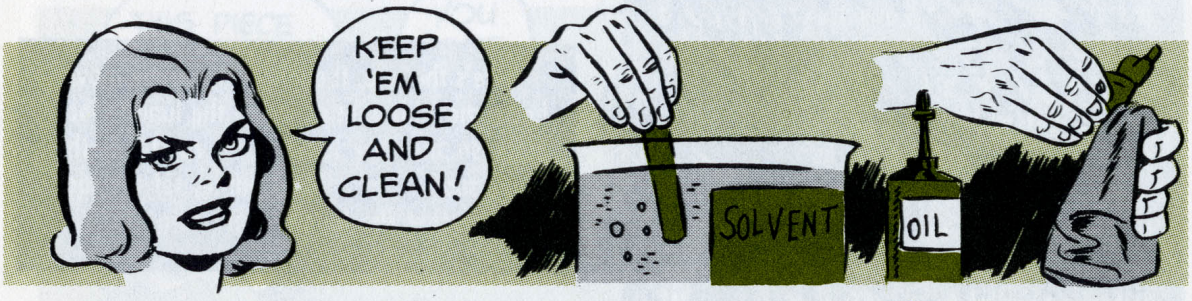
QUICK RELEASE PINS



Worth their weight in piastres . . . hard to get replacements . . . so guard 'em like you owned 'em.

Matter of fact some outfits mark their pins with a number or letter to identify which howitzer they belong with. Might be an idea, if your CO approves.

Here're a couple other things to keep in mind: Keep these pins clean and



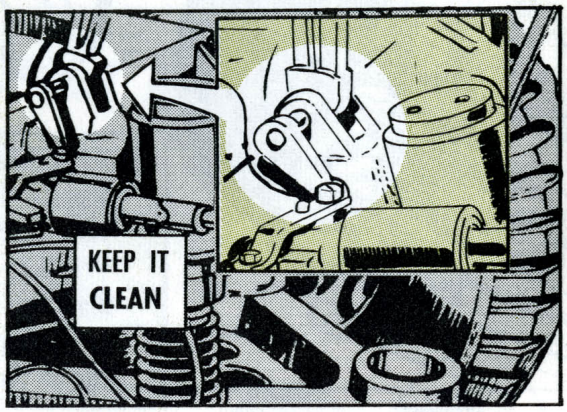
loose . . . meaning, dip 'em in solvent and press or pull the plunger pin at the same time. This'll clean the balls. Then keep 'em lubed—and put some lube in the holes they go into. If a pin gets gooked up, don't pound on it with a hammer to make it go in. It'll bust.

If a pin does get busted, beware of unauthorized modifications. Remember, using a cotter pin or small bolt to repair or replace a pin could be dangerous. It'd no longer be quick-release.

P.S. MORE

Retaining wires for release pins—don't lose 'em. They're plastic-coated, so when they wear they get scratchy. Be careful you don't hurt your hand. Any ordinary piece of wire will do if you have to replace 'em. Some combat outfits find a small thin chain makes a good field fix—using the same old S-hooks, of course, if possible.

The cradle assembly travel lock pin is one you want to keep real clean so that it doesn't freeze. The pin's made of steel and the sleeve bushing it goes through is brass. This could cause corrosion because of galvanic action—two different kinds of metal rubbing against each other. So, clean it often. You'll be glad when that big moment arrives.



ROLLER ASSEMBLY

Smart operating tips:

Don't use more than the 4-6 PSI pressure the TM calls for in the roller tire. O'course, if you have the new type roller filled with foam rubber or styrofoam, you don't have to pester with PSI at all.

Always use the right prime mover—the ¾-ton truck—if you can. This vehicle's pintle is at the right height to make an even tow. If you ever have to use any other prime mover—like a ¼-ton, f'rinstance—drive mighty slow. The quarter-ton's pintle is too low. If you hit a bump while towing the M102, the roller assembly's likely to get cut on its own roller rim.

Here's the rule, though: If the prime mover has a movable pintle, secure the lunette lock plate so that the lunette can rotate. If the prime mover has a fixed pintle, set the lock plate so that the lunette can't turn.

TRAVEL TIRES

Here again it's bright to follow the PSI requirements spelled out in Change 2 to your -12 TM: 40 PSI for transport and 20 PSI for cross country and tactical.

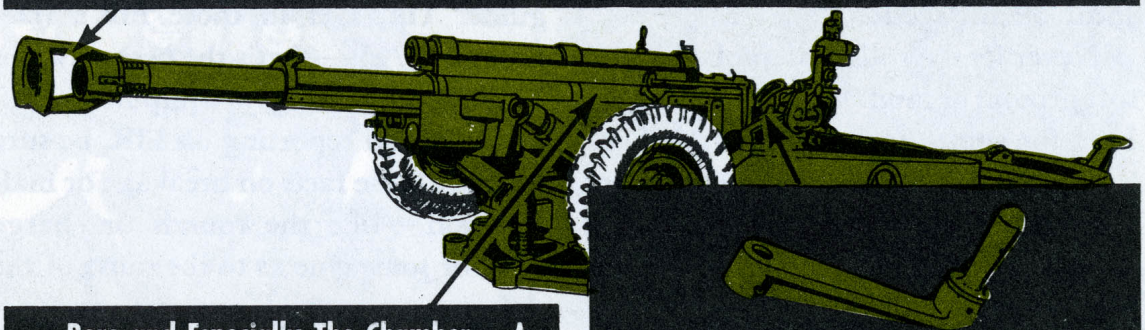
And stick to the speed limits: 35 MPH for good roads and 10 MPH or less for cross country. The big danger of fast travel with over-inflated tires is that you'll flip the howitzer if you hit a bump.

And, naturally, slow and easy does it in rough country. A one-minute rapid occupation's not worth much if Ole Betsy ends up with 3200 mils of cant —you can't shoot thataway!

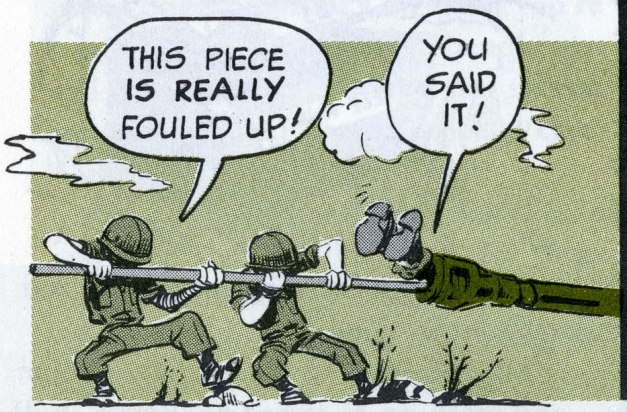
FIRING TIPS

Muzzle Brake — You've got to lock it in the forward position when firing cartridges with zone 8 propelling charge. But, get your CO's OK about locking it forward, rearward — or leaving it off entirely — when firing cartridges with zone 7 or less propelling charge. It's his decision.

Just don't forget to lube the threads on the cannon tube with PL any time the muzzle brake's not on the cannon.



Bore and Especially The Chamber — A build up of material from cartridge cases really fouls 'em up. So, after every 12-15 rounds it might jam up. Use your bore brush and clean the entire bore and chamber — but good.



Breechblock Handle — Never slam it to close it. Close it firmly, but no slamming. You just might cause undue stress or breakage in the bevel gear.

Incidentally, clean this bevel gear at least once a month — oftener if you're operating in gooky areas. Muck collects here and before you know it you'll have trouble closing the breechblock.

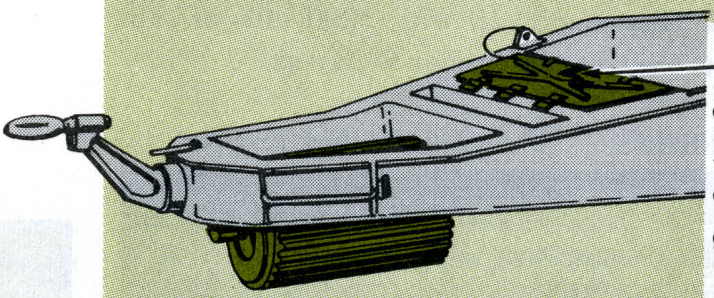
By the same token, if a round gets stuck in the chamber, never yank on the breechblock handle — you could ruin the bevel gear or the handle or the connecting linkage. Open it slowly and remove the cartridge case, if you can. Better yet, doublecheck what your TM says in para 21 — and follow the scoop to a "T".

Firing — You assistant gunners, when you pull the lanyard, hang on to the handle till after the cannon returns to battery. Otherwise, the handle could get busted or caught up in the recoil.

And both you and the gunner want to be real careful you don't even touch the trails when you're firing. This could throw the weapon off 5 to 10 mils.

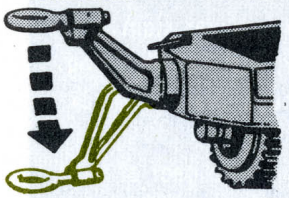
P.S. MORE

Roller Assembly—After every 15 or 20 rounds of firing, it's a good idea to pick up the lunette and rotate the roller assembly a bit. This'll lessen the chances of excessive wear on the helical gears in the front bracket. Constant bouncing up and down of the weapon during firing may cause the worm to shear off the teeth.



Never let the roller assembly dig into soft ground or mud. It'll make it mighty hard for you to traverse by handwheel.

Incidentally, if the handwheels get noisy after a spell, don't worry about it—at least not after you check and see that they don't bind.



Lunette—Always turn the lunette up during firing so that it won't dig in and get bent or busted.

And—any time you pick up the lunette to change the position of the howitzer, put that lunette down **easy** . . . no dropping or tossing. This is another way you could damage those same helical gears in the front housing group.

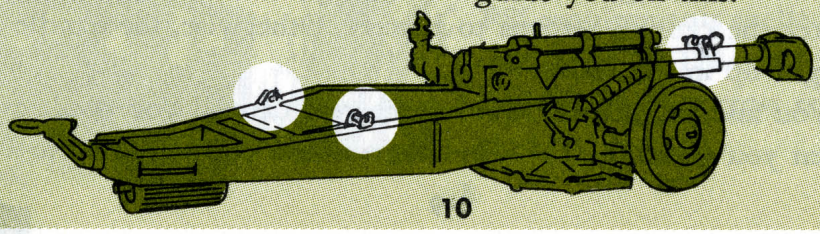
Tool Box—It's for tools, stakes and other equipment needed for operation. F'gosh sakes, don't clutter it up with other stuff . . . and then try to close the cover. You'll bust the lid.

Records and Forms—Let TM 38-750 (Jan 64) w/2 Changes be your guide. Tip: Get in those EIR's (DA Form 2407's)—that's the best way you can help improve new equipment. But, please, when reporting on EIR, be sure to give **all** the facts on breakage or malfunction—like the rounds or charge fired or some clue as to the cause of the defect.

Pubs—Get 'em, keep 'em, use 'em. Here're the ones you want: TM 9-1015-234-12 (8 Mar 65) w/2 Changes; TM 9-1015-234-ESC (7 Sep 65).

Lifting—Here's where you put those LIFT HERE markings on your M102 105-MM towed howitzer to make sure the sling attaching and lifting points get used right during transport and airlift operations.

TB 746-95-1 (14 Aug 64)—color and marking of towed artillery—will guide you on this.



XM148 — TOSS GRENADES WITH YOUR XM16E1 RIFLE

So you've been picked to tote one of these spanking new 40-MM XM148 grenade launchers on your XM16E1 rifle. Congratulations. Obviously you're a guy who can be trusted to handle special assignments . . . with a real special weapon . . . that deserves special care. A responsible type, that's wot!

OK, so here's some dope that'll help you keep your weapon ready for those big moments in any grenadier's life—when the whole outfit's depending on you. Some of it goes along with what's in TM 9-1005-249-14 (1 Aug 66) and TC 23-10 (Apr 66) and some of it comes from guys who've already had a lot of experience with the XM148. All of it rates your strict attention.

Like . . .

PS MORE

BEWARE M75 AMMO

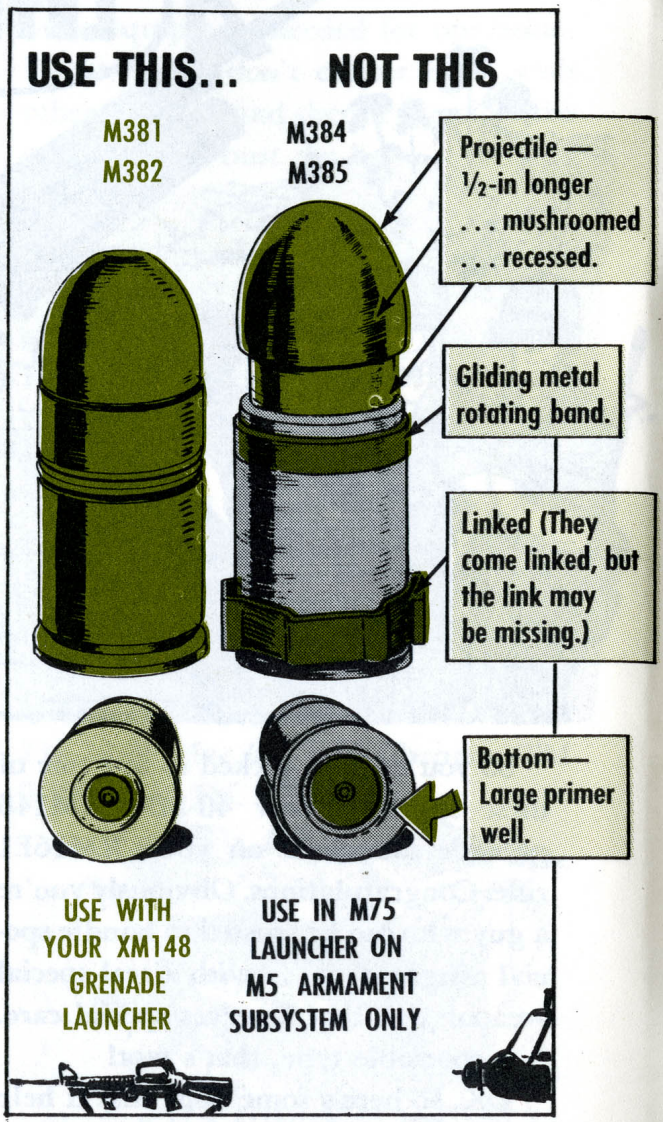
Yeah, if you goof and use the high velocity ammo for the M75 grenade launcher mounted on the M5 helicopter armament subsystem, the recoil could lose you a shoulder, if not a life . . . and, natch, there'd go another valuable weapon, too!

You've got to be real careful 'cause the M75 cartridge—both the 40-MM HE M384 and Practice M385—will chamber in your XM148. It'll lack only

1/8-in of closing, but the firing pin spring may be strong enough to actuate the firing pin!

So, your best bet's to eyeball every round—top, bottom and side—before you load up your bandoleer or whatever you carry ammo in. Turn in every round pronto that's not meant for your weapon . . . and don't let your buddies get at it.

Here're the things that distinguish the high velocity M75 round from the low velocity 40-MM HE M381 and Practice M382 you have to use in your XM148:

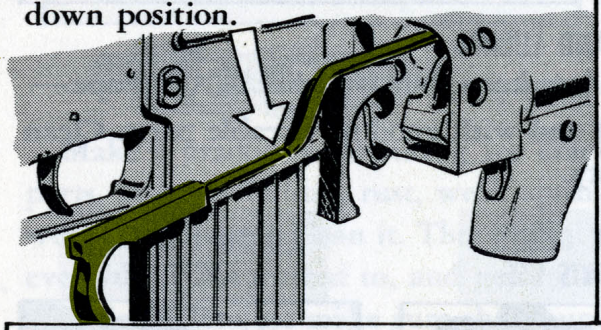


INSTALLATION AND FIRING TIPS

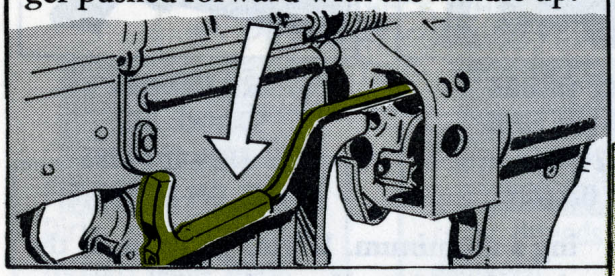
It only takes a couple minutes to put the XM148 launcher on your rifle. Just follow the steps in your TM. But make sure you remove the bayonet, change the handguards, and transfer the sling swivel and sling from the rifle to the launcher. Otherwise, the rounds will be blocked or deflected when you fire.

'Course, you can fire both the rifle and the launcher after the launcher's been mounted. Just watch it that the launcher trigger doesn't get in the way of your rifle trigger. The best way to avoid this is like so:

When you expect to fire the launcher, keep the launcher trigger extension pulled all the way back and in the down position.



For carrying: Keep the launcher trigger pushed forward with the handle up.



TIP—Be mighty careful with your weapon when the launcher's loaded and the safety's in the F (FIRE) position. Striking or bumping either the rifle or the launcher could discharge the grenade.

TOOLS AND BRUSHES

Combination Tool—You'll have either the interim tool—no FSN or Part Number—or you'll have the standard combination tool, which comes under FSN 4933-999-8554.

You want to be careful when using either tool to assemble or field-strip your launcher, especially when you're working on the firing pin retainer. Watch out you don't damage the slotted part of the retainer. Easy does it—like always.

Brushes—If you don't have these . . . requisition 'em right off.

Brush, Cleaning, M79 . . .
FSN 1010-474-5466

Brush, Cleaning, Small Arms:
M6 chamber . . .
FSN 1005-610-8828

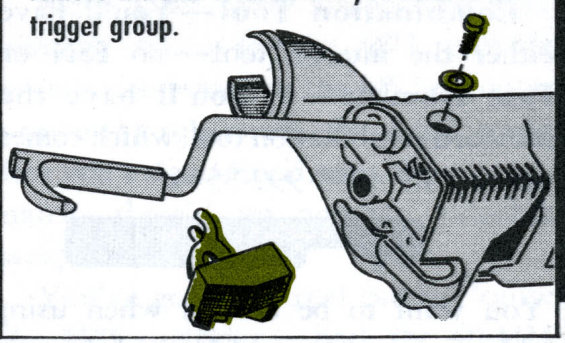
Thong, Cleaning Brush . . .
FSN 1010-474-5465

FIELD STRIPPING

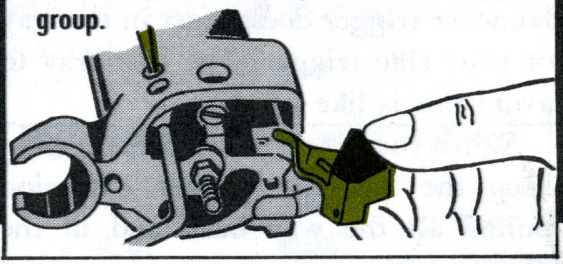
Running into trouble when you disassemble/assemble according to the steps in your TM? OK, here're a couple changes in the procedure that'll ease things for you. You'll find 'em in Ch 1 (Jan 67) to TM 9-1005-249-14.

P.S. MORE

When field-stripping, remember, always remove the sear lever before you remove the trigger group.



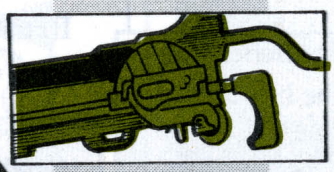
When assembling, remember, the sear lever must be assembled to the sear before you assemble the firing pin . . . AND . . . the sear must be installed before you install the trigger group.



CLEANING AND LUBING

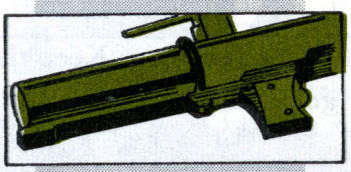
Never forget, you owe it to your outfit to keep your launcher in A-1 shape — which means clean, lubed (but **lightly**) and with good serviceable parts. Clean it every time it gets wet, muddy, or dusty.

ON INSIDE PARTS USE:



BORE CLEANER (CR) FSN 6850-224-6656 (2 OZ CAN)

ON OUTSIDE PARTS USE:



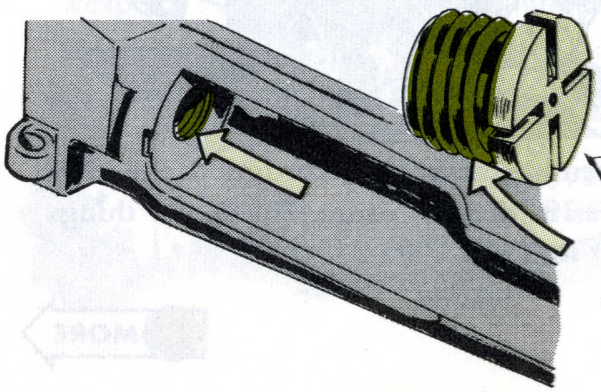
DRY CLEANING SOLVENT (SD) FSN 6850-281-1985 (1 GAL CAN)

The big idea is to work the cleaning stuff in good with your brush, covering all areas. Then wipe 'em good and dry with a patch or clean rag before you apply the lube.

Really bear down when you clean the firing pin recess area. Clean the threads inside the housing and on the retainer. Make sure you don't leave any sand or grit on these threads. The retainer's made of steel, but the housing's aluminum. If you go to mate the threads with sand or grit on 'em — even one grain — the housing'll get torn up.

You shouldn't have any trouble with cross-threading, by the way, if you use your combination tool carefully.

Incidentally, you can use the end of your cleaning rod to work on the grip lock plunger.



Lubing — Two big rules:

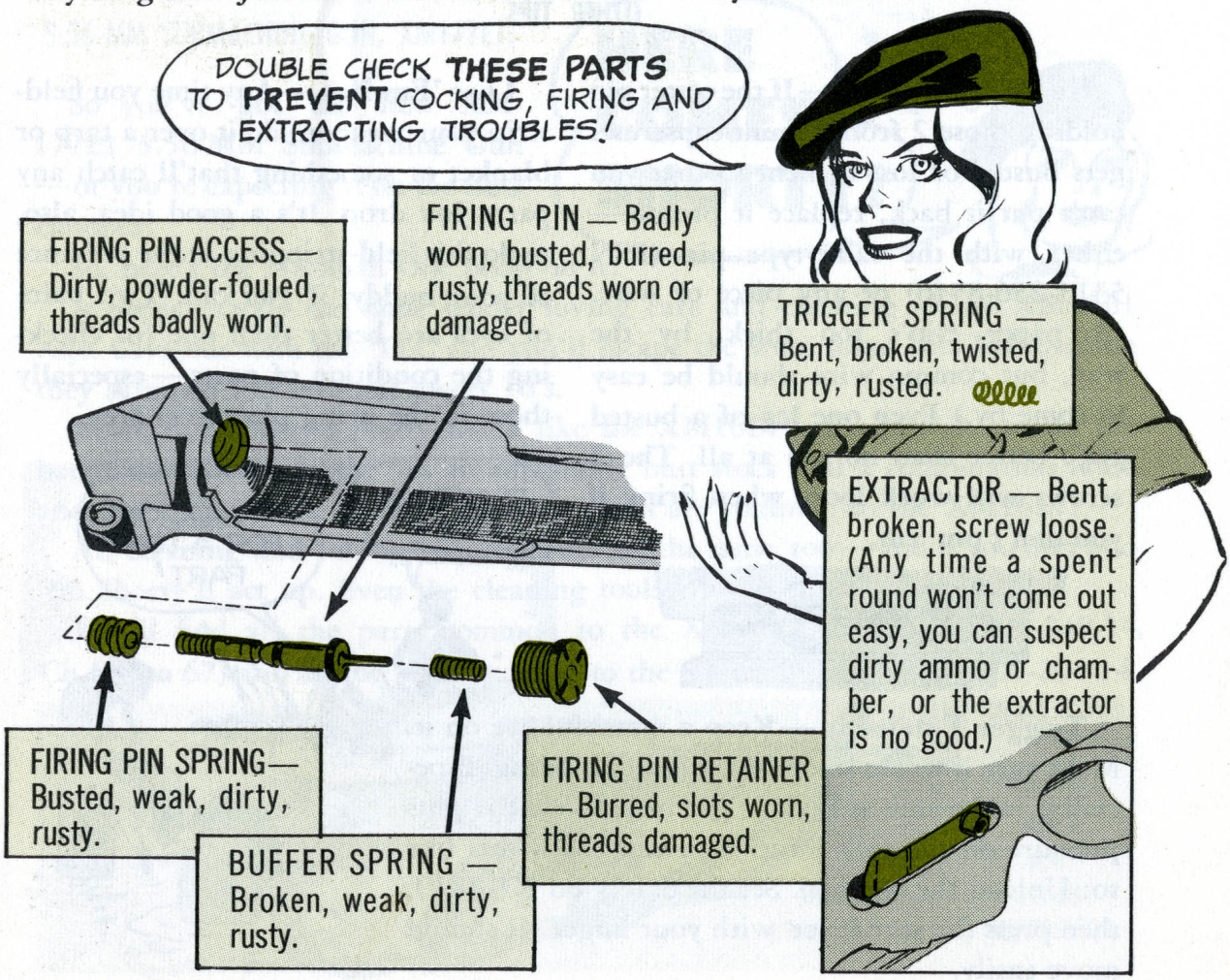
1. Never use any lube not specified in your TM — no off-the-shelf stuff, hear? Actually, it'd be better not to lube your XM148 at all than to use the wrong stuff.

2. Lube **lightly** — like with a clean rag dampened with PL Special. Too much lube's worse than no lube, too. Oil's like a magnet — attracts dust and dirt . . . and trouble, when it's over-done.

TIP — Put a drop of PL Special on all movable parts of your sight — the roll pin, plunger spring, detent latch — every time you clean your weapon. This'll keep 'em from freezing.

USE YOUR EYEBALLS

Make a practice of checking for cracks, burrs, severe wear, loose or missing parts, powder-fouling, rust, weak springs and the like every time you take your weapon apart and clean it. This is the best time to see if they're OK. Fix whatever you're authorized to, and get your armorer or support to replace or repair anything else. Just make sure that launcher's ready for action at all times!

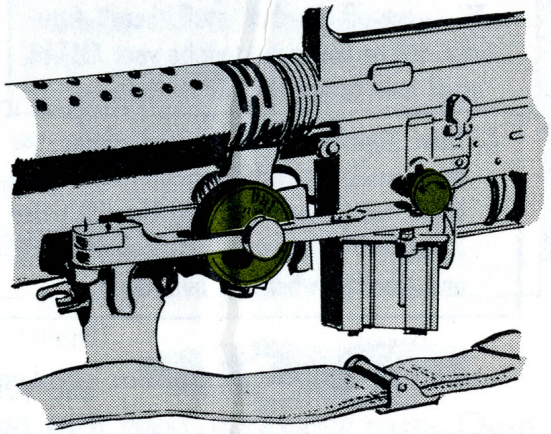


PS MORE

SIGHT ASSEMBLY

Remember, you're not allowed to disassemble a single part of the sight assembly — and your armorer can only replace the sight slide spring.

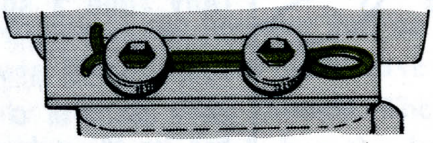
However, if the range elevation setting changes when you fire, or if you can't make an adjustment or change in setting, look for looseness or tightness in the friction bolt. Get Direct Support to fix it — they have the tool for the job.



TIP — Tilt the sight on its side for an easier look at the settings. And, remember, you've got to press the sight lever all the way forward so that it clears the serrations on the scale.

OTHER TIPS

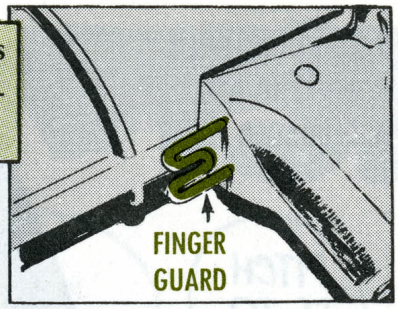
Keep 'Em Pinned — If the cotter pin holding those 2 front mount capscrews gets busted or lost or bent so that you can't put it back, replace it pronto — either with the same-type pin (FSN 5315-236-8346) or any piece of wire. (A paper clip's too thick, by the way, but commo wire should be easy to come by.) Even one leg of a busted pin's better than no pin at all. The 2 screws will work loose when firing if you don't pin 'em.



Lose 'Em Not — Any time you field-strip your weapon, do it over a tarp or blanket or something that'll catch any parts you drop. It's a good idea, also, to do this field-stripping in the presence of your buddy, if you can. Two pairs of eyes are better than one for checking the condition of parts — especially those in the firing pin recess area.

Trigger Extension — Keep a watchful eye on it. Make sure it works smoothly, without binding. Especially, make sure it doesn't get bent so that it puts pressure on the sear lever. You can check this like so: Unload the weapon. Set the Safety on F (FIRE), then press the sear lever with your finger. It should move easily.

Pistol Grip Finger Guard — Make sure it works OK. Could save your fingers when you load or unload in a hurry.



Go By The TM . . . Always — If any dope you find in TC 23-10 (Apr 66) conflicts with dope in your latest TM 9-1005-249-14, follow the poop in the TM.

Corrections To TC 23-10 — If you've got a TC handy, make these corrections in it:

Para 12, page 6 . . . REAR SIGHT — One click of the elevation screw will move the strike of the round 1.5 (**not 2.5**) meters at a range of 200 meters.

Chart IV, page 34: — showing the distance the strike of the round is moved at various ranges when a one-click change is made in rear peepsight settings. Change the 3.0 to 2.0 and the 2.5 to 1.5 meters in the second column.

Something to Remember — This XM148 is the infant of the outfit. Baby it. Better yet, help it grow up into the weapon it's meant to be by getting in those EIR's (DA Forms 2407). This way the engineer-types can improve it.

5.56-MM SUBMACHINE GUN, XM177E1:

So you've got the new XM-177E1 5.56-MM Submachine Gun — or you're expecting it on the next chopper!

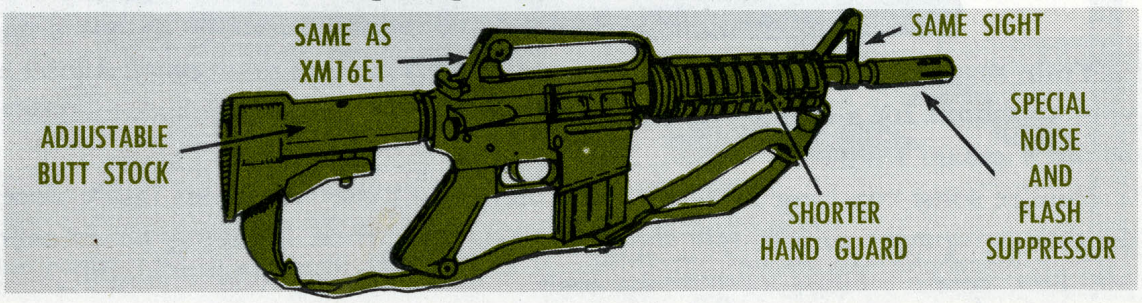
So, here's the Numbah One poop on it:

It needs exactly the same tender loving care and cleaning as the XM16E1 rifle. Give out with this TLC and you'll escape the woes some Joes had because they skimped PM on their Sweet 16's.

Yeah, this Shorty's pretty much like the XM16E1 — it's just shorter in the barrel and hand guards, has an adjustable butt stock and a combination noise and flash suppressor. Most of its other parts are common to the XM16E1.

All cleaning and lubing requirements are the same, too — and if you don't do 'em Shorty'll act up. Even the cleaning tools are the same.

You'll find all the parts common to the XM16E1 in TM 9-1005-249-14, Ch 1 (Jan 67) and all the parts peculiar to the Shorty in POMM 9-1005-294-14.



Yeah, that season's here again . . . a good time to sharpen your eye and loosen your soupbone for a better year against malfunctions with your XM16E1 rifle in the Vietnam League.

Here're some coaching hints that may help—all the way from inside dope on new equipment to a couple signals to keep you from bumping heads over pop flies.

XM16E1 RIFLEMEN: WHEN THE BASES ARE LOADED . . .

EVERY HIT COUNTS!

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CLEANING ROD NEWS

Had trouble getting an interim M11E1 cleaning rod from the bat boy? No wonder! That FSN 1005-999-1295 in the new TM 9-1005-249-14 (1 Aug 66) should be FSN 1005-903-1295.

But the big news is that the interim rod's being replaced by the M11E2 . . . FSN 1005-999-2035 . . . which has a folding handle—you can use it straight or you can open it. Ask for this new rod after your interim rod gives out.

FSN 1005-999-2035 M11E2 CLEANING ROD

TIP—The threads on the M11E2 are the same as on the M11E1, meaning you could interchange rod sections if you had to. Just remember this, though: Never try to use it with sections of any other rod and especially with any brushes except the new bore brush (FSN 1005-903-1296) and chamber brush (FSN 1005-999-1435).

BORE BRUSH
FSN 1005-903-1296

CHAMBER BRUSH
FSN 1005-999-1435

MORE

HIT COUNTS!

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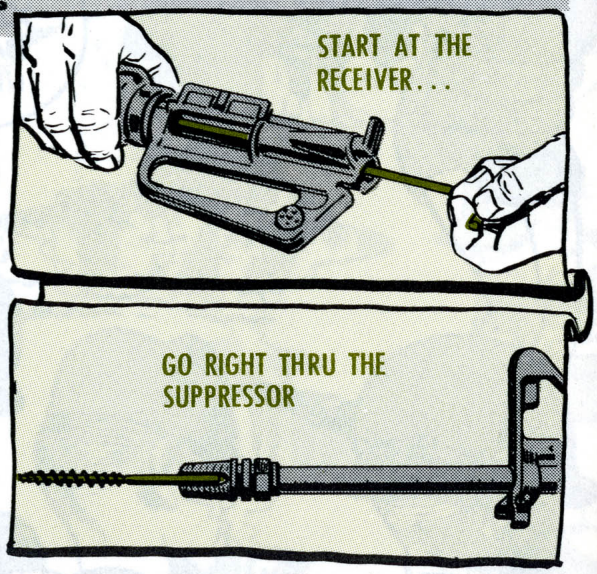
BORE BRUSH
FSN 1005-903-1296

CHAMBER BRUSH
FSN 1005-999-1435

PS MORE

LAID A BUNT LATELY?

Probably not. But you could use the same idea when you're bore-brushing your weapon. Right. Choke up on the cleaning rod—hold it about 2 inches from the receiver and push it straight inch by inch in short jerks all the way through the flash suppressor. Then pull it back all the way out—again in short jerks. Never pull the brush back till after it's gone through the flash suppressor. Do it the right way and you won't hurt the rod.



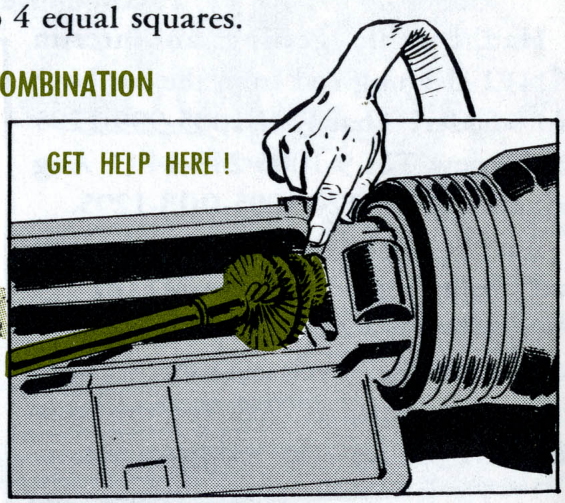
Same idea goes when you're running patches through. Run it all the way through the flash suppressor before you start to pull back . . . no matter what size patches you're using—the one for the XM16E1 (FSN 1005-912-4248) or any large type that you have to cut into 4 equal squares.

DOUBLE-PLAY COMBINATION

By the way, when was the last time your unit armorer—Max Schnell, good 'ol Speedy Four—checked out your weapon? Don't know? Can't remember? Then it's due right now for a physical. Get with it! Maxie's the best partner you'll ever have . . . PM-wise.

Here're a couple ways Maxie can shortstop trouble for you:

Any time you run into real trouble with crud or carbon buildup when you're cleaning your rifle—especially in the bolt and locking recess area—get your armorer to help you tackle it with P-C-111A carbon removing compound, FSN 6850-620-0610, 5-gal can.



And if you're having trouble losing front sling swivels, forget what you read or heard about getting it staked. Won't work. Instead, ask your direct support to spread the split spring pin with a punch. The pin will take several treatments like this before it bites the dust.

Also, if you lose the firing pin retaining pin or it gets busted, get your armorer to give you the new type . . . FSN 1005-999-1509.

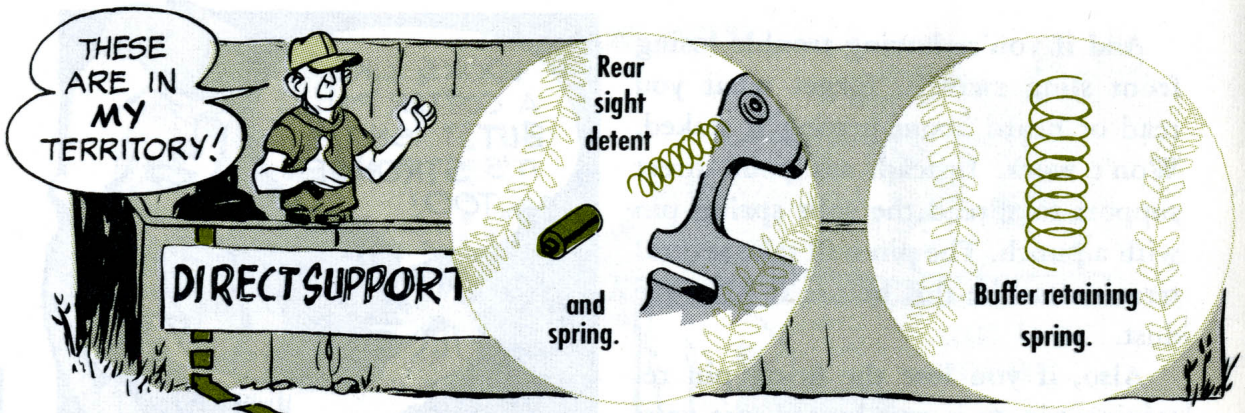
SPITBALL ARTIST?

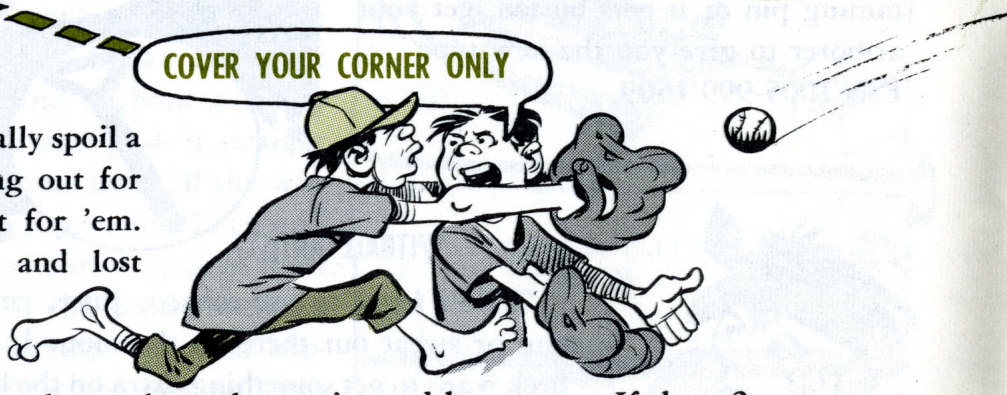
'Tain't legal to use tobacco juice, emery or slippery elm or sweat out there on the mound, but you sure as heck want to get something extra on the ball when you're trying to strike out rust and corrosion in your XM16E1 . . . especially in Rice Paddy Park. 'Bout the best thing around is Lubriplate rifle grease (FSN 9150-754-0063 . . . 1-lb can) — the stuff in your li'l ol' lube case.

No big trick to using this stuff — just spread on a thin film with the applicator or your finger (like shoe polish, yet!) and then rub it in.

Friction surfaces on the bolt and carrier — especially the bolt cam pin. This pin turns the bolt, gets more friction than any other part. Never neglect it.

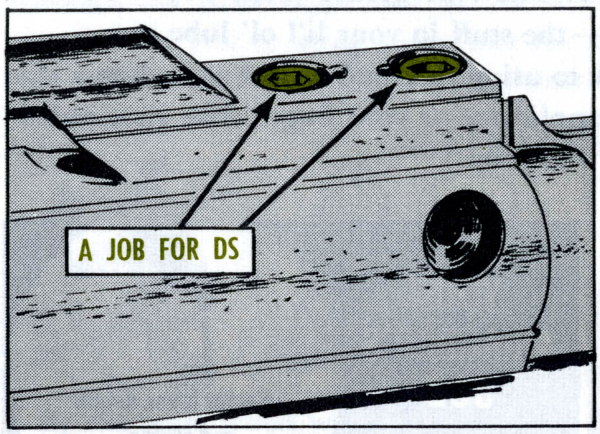
PS MORE





Some guys really spoil a play by reaching out for balls not meant for 'em. Bumped heads and lost games result.

Same ground rules apply to the carrier and key screws. If these 2 screws get sheared off or loose, turn the weapon in to DS. They've got to be torqued and staked—a mere pop fly for DS, but an impossible play for you.



Ditto for all parts of the upper receiver assembly. If any part gets bent—like the ears around the rear sight—or any part comes loose or busted, f'goshsakes, don't you try to fix it—nor you, either, Maxie! Turn the weapon in to DS.

And still one more: Natch, when you're field stripping your rifle you'll be careful not to drop the carrier and key assembly or bump 'em against anything hard. The carrier key bends pretty easy—and then won't line up inside the weapon. But, if they do get bent, don't you or your armorer try to straighten 'em. That's a drive too hot to handle. Let DS fix 'em.

You're bound to have a good season if you stay on the ball with your PM.

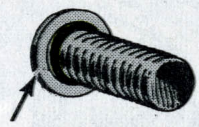
You say moisture's muscling in on your TA-43/PT or TA-312/PT telephone set and knocking out conversation?

Sorry 'bout that . . .

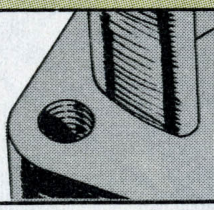
Your best bet's to beat that wet worrier on its own ground.

MAKE SURE ALL GASKETS ARE PRESENT AND IN GOOD SHAPE.

ESPECIALLY BETWEEN HOUSING & PANEL & PANEL SCREWS



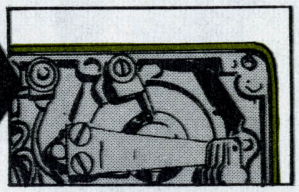
FSN 5805-576-5453



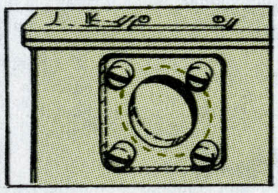
A cracked or missing gasket is an open invitation for a wet wrecking party inside the telephone case.

CHECK THESE ALSO:

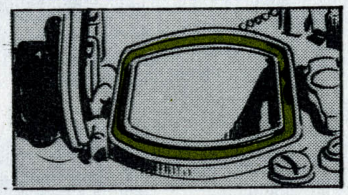
PANEL HOUSING



SUB-ASSEMBLY

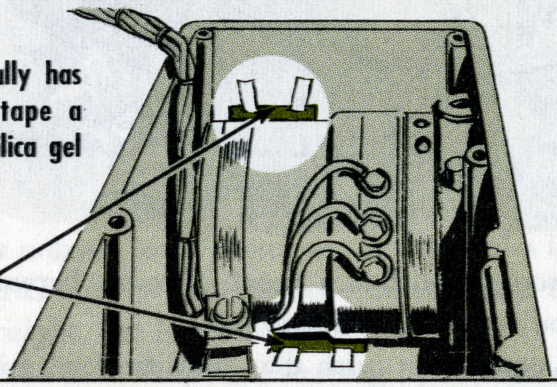


BATTERY COMPARTMENT



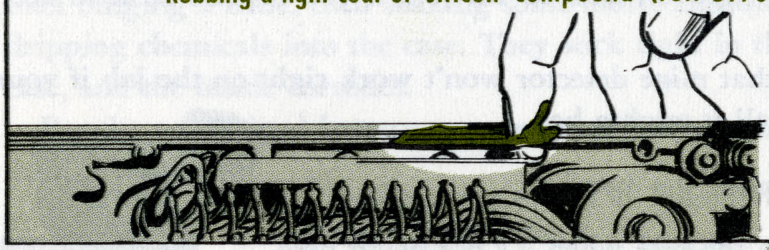
If moisture really has you mouthing, tape a little packet of silica gel inside the case.

DESICCANT



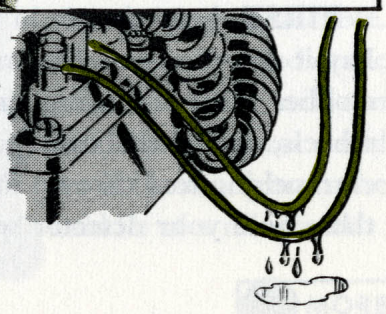
Space is limited, so keep it away from contacts or it might soak up the dampness and short out the phone set. MIL-D-3464 type desiccants are listed in C 6800-IL (Jan 66) on pages 4.66 thru 4.69.

Rubbing a light coat of silicon compound (FSN 5970-195-1598) . . .



. . . around the panel and housing assembly gasket will go a long way in warding off water. It'll snuggle up the panel and housing case.

When you have the telephone tied to a tent pole, or the like, be sure there's a sag in the WD-1/TT field wire coming into the binding posts. 'Cause wiring angled down to the telephone set makes for a rain dripping track that could lead to trouble.



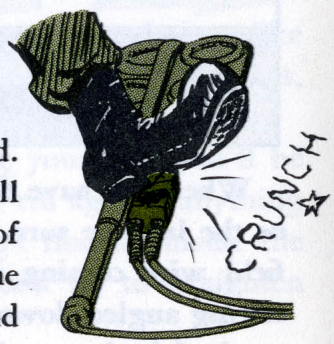
So Charlie dropped around and laid a bunch of mines between the mess hall and the can yard, and you've got to find 'em?

You've got the right equipment with that transistorized mine detector. But you'll have to handle it right on and off the job, if you depend on it to keep you in one piece.

Fact of the matter is, that mine detector won't work right on the job if your between-hunts care isn't all it oughta be.

OFF-THE-JOB TIPS

FIRST, keep the set in the case when it's not being used. Lay it down, even a few minutes, and somebody's boots will clobber it. If it's being carried in a ¼-ton or other set of wheels, using the case goes double—otherwise, just one entrenching tool thrown in on it or one tie chain over it, and there goes your detector set, wham!



NO FOOT REST

FINDER, KEEPER . . .

YOUR MINE-DETECTING BEEPER

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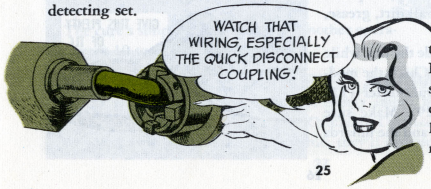
NO FOOT REST

SECOND, let nobody leave those mercury batteries in the container after use. When the set's taken apart to stow, even overnight, the batteries come out.

When left in the case, they start soaking up moisture, then bulging a little, then soaking some more, and then dripping chemicals into the case. They stick tight in the case, and the inside corrodes.

Result: one ruined battery case and one useless mine detecting set.

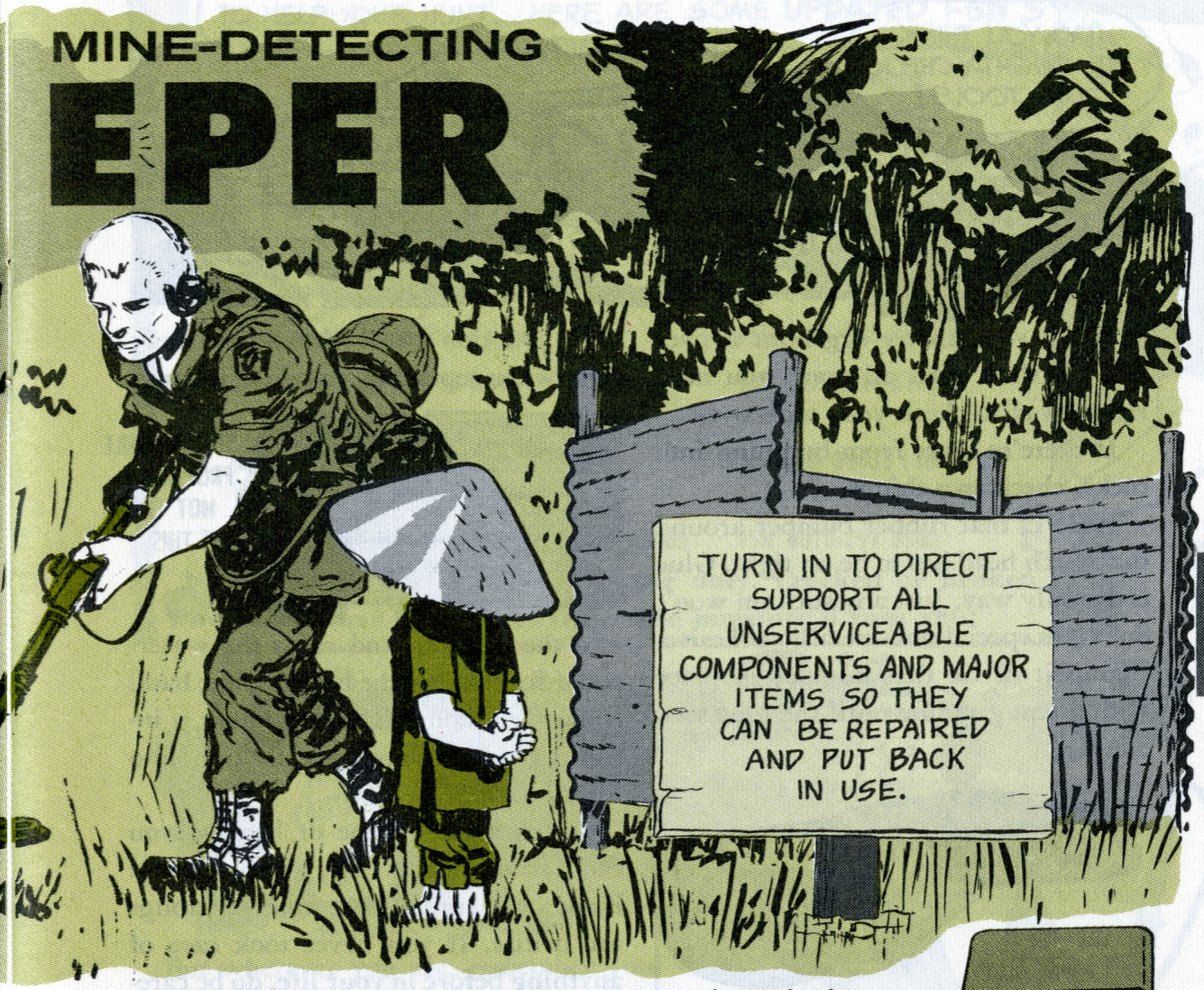
PULL BATTERIES WHEN NOT IN USE



THIRD, take care of that wiring and cable. Keep oil off it and make sure that cable still can do the job. Dry rot could let it break right in the middle of a minefield.

MORE

MINE-DETECTING EPER



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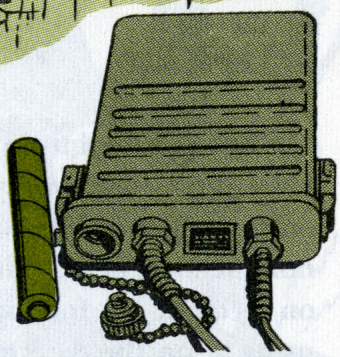

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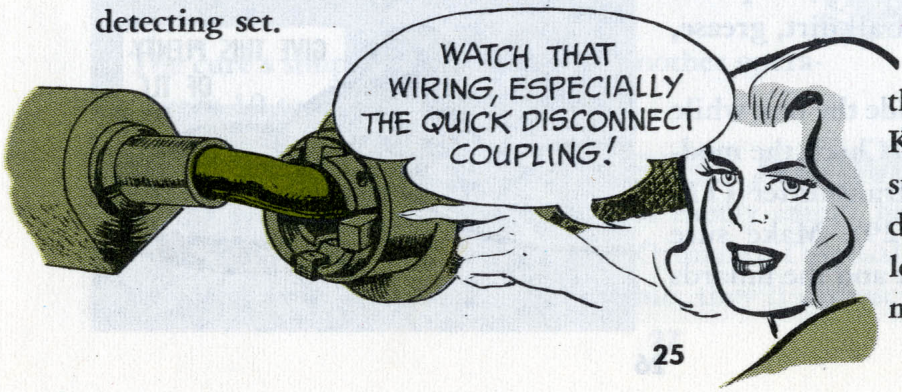


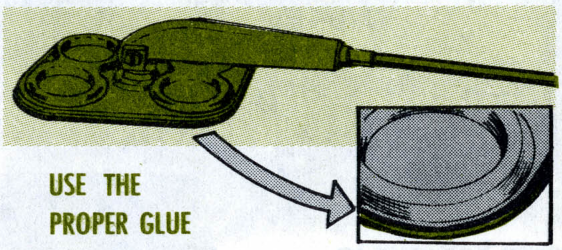
THIRD, take care of that wiring and cable. Keep oil off it and make sure that cable still can do the job. Dry rot could let it break right in the middle of a minefield.

PS MORE

When your Easter egg hunt is over and Charlie's gifts all gone, you need right away to check your tools over.

If there're scars from bumping into rocks, check two things.

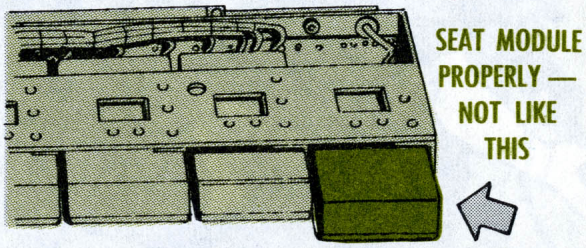
FIRST, that rubber bumper around the search head has to be on tight. Glue is the only way. Just any stickum won't do; takes special non-metallic adhesive. Clamp it or tie that bumper in place with a tent guy line until the glue sets. Simple.



SECOND, paint up nicks and scrape marks and don't worry if it won't stick on the search head. For that you'll use non-metallic paint. The stuff you'd use on a truck or footlocker is out, and using it on the detector set would put the set out, far out. Before you paint, take a rag and wipe off all dirt, grease, and moisture.

Then you can go inside the box while the paint and glue dry. Check the modules in your receiver-transmitter (TM 5-6665-202-15, page 29). Make sure the pins are all straight and the innards of the case clean.

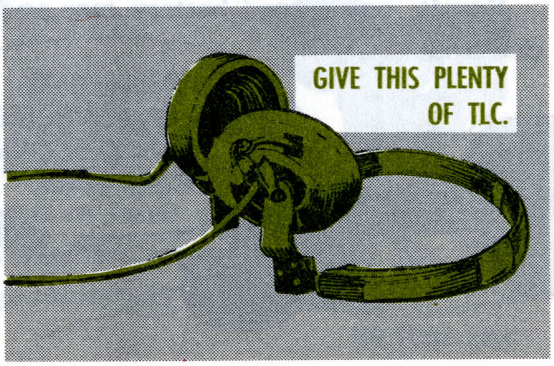
If you don't seat the replacement right when replacing a module, it bangs



into the case top and ruins the waterproof seal. So use the butt of your hand to ram 'em home. That whammy is insurance against moisture leaking into the case top.

When a pin's gone or bent so you can't straigthen it easy, a replacement is the only cure. Those module prongs are brittle. If you never took care of anything before in your life, do be careful of those pin ends.

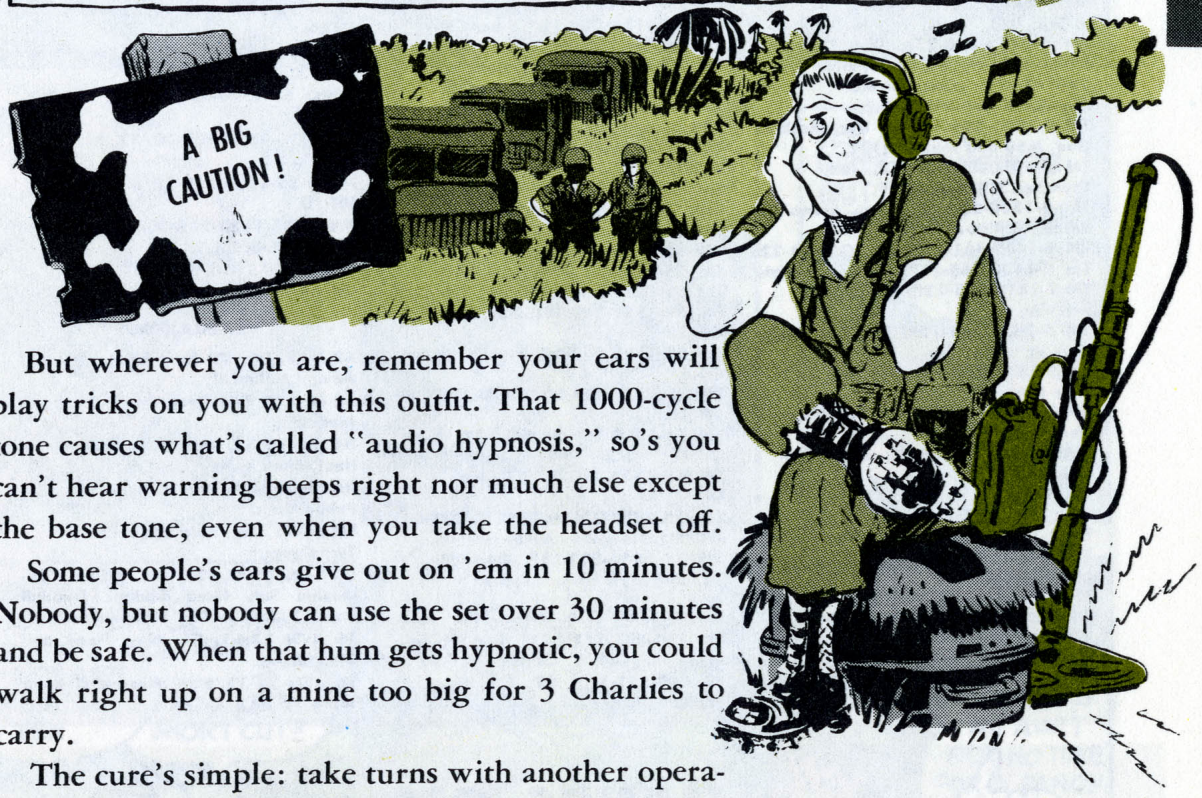
Another life-saver must is keeping that headset always protected from whams and bams. Moisture inside is bad, dropping it is worse, and anybody who throws it around is on Charlie's side, not yours.



TO HELP YOUR HUNT... HERE ARE SOME **UPDATED FSN'S**

ITEM	STOCK NUMBER
Detecting Set, Mine (P-153-and P-158)	FSN 6665-966-9071
Detecting Set, Mine (MD-M)	FSN 6665-966-9072
Battery, dry, mercury cell, BA/1389/U or equal, Part No. 13200E2684	FSN 6135-961-3603
Wiring Harness (receiver-transmitter)	FSN 6665-996-0570
Cable Assembly (control box power wiring)	FSN 6665-996-0573
Insulation tape, ¾-in, 108 ft roll	FSN 5970-644-3178
Glue, non-metallic, kit, 2 oz (Epoxy catalyst actuator type includes EC-2216-B and 2216-A in carton)	Mfr code 04633 (3M Co.) Part No. EC-2216-B/A
Paint, non-metallic, vegetable base, O.D., 1 gallon	FSN 8010-297-0560

That tape is for emergency repair only. Cracked or broken wires you have to replace. Otherwise moisture'll ruin you.



But wherever you are, remember your ears will play tricks on you with this outfit. That 1000-cycle tone causes what's called "audio hypnosis," so's you can't hear warning beeps right nor much else except the base tone, even when you take the headset off.

Some people's ears give out on 'em in 10 minutes. Nobody, but nobody can use the set over 30 minutes and be safe. When that hum gets hypnotic, you could walk right up on a mine too big for 3 Charlies to carry.

The cure's simple: take turns with another operator every 10 to 15 minutes—no more.

CHARLIE'S AMMO

When you capture or find a cache of enemy ammo, hold up before you blow it up. Ring up your outfit's Explosive Ordnance Disposal (EOD) guys. Let them take a look at it for its intelligence value; they'll dispose of it for you.

A selected list of recent publications of interest to Organizational Maintenance Personnel. This is a list compiled from recent Adjutant General's Distribution Center Bulletins. For complete details see DA Pam 310-4 and Ch 3 (14 Oct 66) and DA Pam 310-6 and Ch 2 (1 Jan 67).

TECHNICAL MANUALS

TM 1-10H-23C-4-20P, C5, Jan, OH-23.
TM 5-3895-203-25P, Nov, Spreader, Aggregate: Towed, 4 Whl, Pneum Tires, 8 Ft Spread (Etnyre Mdl V8 M1).
TM 5-6115-226-25P, Nov, Gen Set, Gas Eng: 1.5 KW, DC, 28V, Tubular Frame Mtd, (Winpower Mdl G-1528-2A016) (Less Engine).
TM 5-6115-235-25P, Dec, DED, Gen Set, 45KW, AC, 120/208, 240/416 V, Skid Mtd.
TM 5-6115-240-25P, Dec, Gen Set, DED: 45 KW, AC, 120/208 V, 240/4166 V, (Cummins Mdl JS-6-G 45 KW-400 Cycle).
TM 9-1005-224-12, C2, Dec, Machine Gun, M60 and Mount M122.
TM 9-1010-205-12, C2, Jan, Launcher, Grenade, M79.
TM 9-1300-204, C3, Dec, Ammo for Recoilless Rifles.
TM 9-1400-461-12P, Jan, GML M-22.
TM 9-1400-465-15P, Jan, Shillelagh.
TM 9-1410-375-12P/1, Nov, Pershing.
TM 9-1430-250-15P/2/2, Dec, Nike-Herc.
TM 9-1430-250-15P/5/1, Dec, Nike-Herc.
TM 9-1430-250-15P/12, Dec, Nike-Herc Imp.
TM 9-1430-254-15P/1, Dec, Nike-Herc Imp.
TM 9-1440-250-15P/3/1, Dec, Nike-Herc.
TM 9-1450-500-20, Nov, Hawk.
TM 9-4935-253-25P/3/1, Dec, Nike-Herc.
TM 9-4935-376-12P/1, Dec, Pershing.
TM 9-6920-425-14, Dec, REDEYE.
TM 10-3510-208-25P, Dec, Laundry Unit, Single Trailer, Mtd w/Canvas Cover; Army Type M532 (Eidal Mdl ELT 9T).
TM 10-3930-242-20P, Nov, Truck, Lift, Fork, DED, Rough Terrain, 6,000 Lb Cap. Anthony Mdl MLT 6 Army Mdl MHE-200, Chrysler Mdl MLT 6 CH, Army Mdl MHE-202.
TM 11-1090-269-25P, Dec, Night Vision Sight, Crew Served Weapons.
TM 11-5805-358-25P, Dec, Telephone Terminal Set AN/TCC-60.
TM 11-5820-215-12, Nov, OA-2180/FRT-51 Modulator-Oscillator Group.
TM 11-5820-612-25P, Dec, AT-880/U Antenna Assy.
TM 11-5840-293-12, Oct, AN/FPN-40 Radio Set.
TM 11-5840-314-25P, Dec, Azimuth-Elevation-Range Recorder RD-54/TP.
TM 11-5840-320-25P, Dec, AN/MPQ-10 and AN/MPQ-10A Radar Sets.
TM 11-5840-321-25P, Dec, PP-746/MPQ-10 Power Supply.
TM 11-6110-200-25P, Dec, CN-167/MPQ-10 Voltage Regulator
TM 11-6625-320-25P, Dec, ME-30( )/U Electronic Voltmeters.
TM 11-6625-589-25P, Nov, SG-621/U Signal Gen.
TM 11-6625-605-25P, Dec, SG-92/U, SG-92A/U Sweep Gen.
TM 11-6650-275-25P, Dec, Binocular, Infrared, Driving, Metallic Body.
TM 55-1510-201-20P, C2, Feb. U-8.
TM 55-1510-204-20, Nov, OV-1.
TM 55-1510-205-20P, C3, Jan, U-1.
TM 55-1520-202-20P, Dec, CH-34.
TM 55-1520-206-20P, C2, Jan, OH-23.
TM 55-1520-209-20PMP, C1, Nov, CH-47.
TM 55-1520-209-20, C9 & -20P, Jan, CH-47.
TM 55-1520-209-20PMP, C2, Jan, CH-47.
TM 55-1520-210-20PMP, Nov, UH-1D.
TM 55-1520-211-20PMD, -20PMI, & -20PMP, Nov, UH-1A-1B.
TM 11-5840-322-25P, Dec, PP-745/MPQ-10 Power Supply.

TECHNICAL BULLETINS

TB 750-931-1/1, C1, Jan, Fixed Wing.
TB 750-931-1/1, C2, Feb, Fixed Wing.
TB 750-931-1/2, Dec, Rotor Wing.
TB 750-931-1/2, C1, Jan, Rotor Wing.
TB 750-931-1/2, C2, Feb, Rotor Wing.

MODIFICATION WORK ORDERS

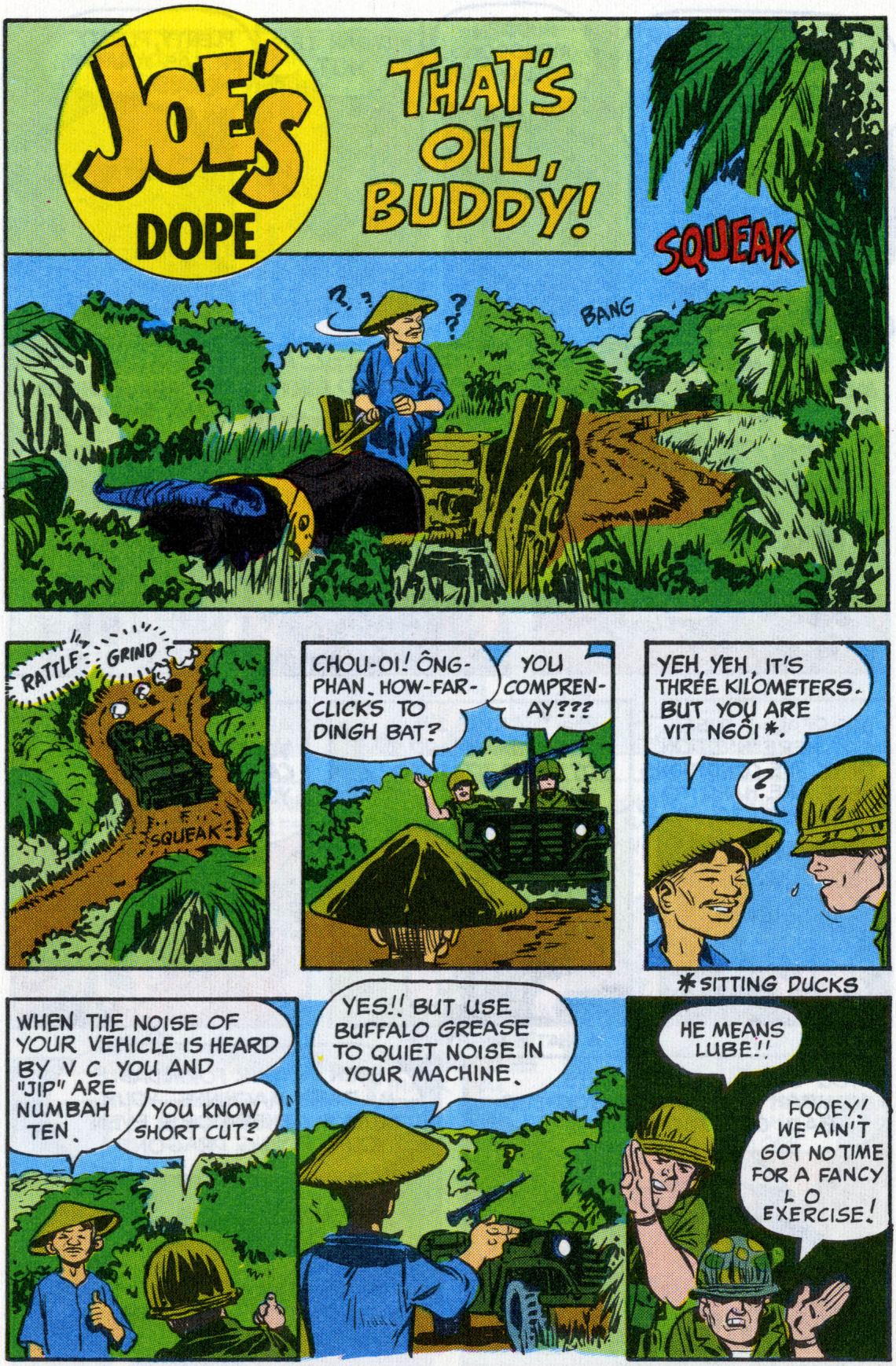
MWO 5-2410-209-20/1, Dec, Tractor, Full-Tracked, Low Speed, Dsl Eng, Med Drawbar Pull, Oscillating Track, 74 In Min Gage, Allis-Chalmers Mdl HD16M, Install Hydraulic Oil Filler Neck Guard.
MWO 9-4935-455-30/2, Jan, ENTAC.
MWO 9-4940-252-30/1/34, Jan, Nike-Herc Imp.
MWO 55-1510-204-34/53, Jan, OV-1.
MWO 55-1510-205-34/1, C3, Feb, U-1.
MWO 55-1520-202-40/1, Jan, CH-34.
MWO 55-1520-206-30/4, Jan, OH-23.
MWO 55-1520-209-20/52, C1, Feb, CH-47.
MWO 55-1520-209-30/32, Jan, CH-47.
MWO 55-1520-210-20/17, Feb, UH-1D.
MWO 55-1520-211-30/9, C1, & -30/34, Feb, UH-1A-1B.
MWO 55-1520-211-30/12, Feb, UH-1A-1B.

MISCELLANEOUS

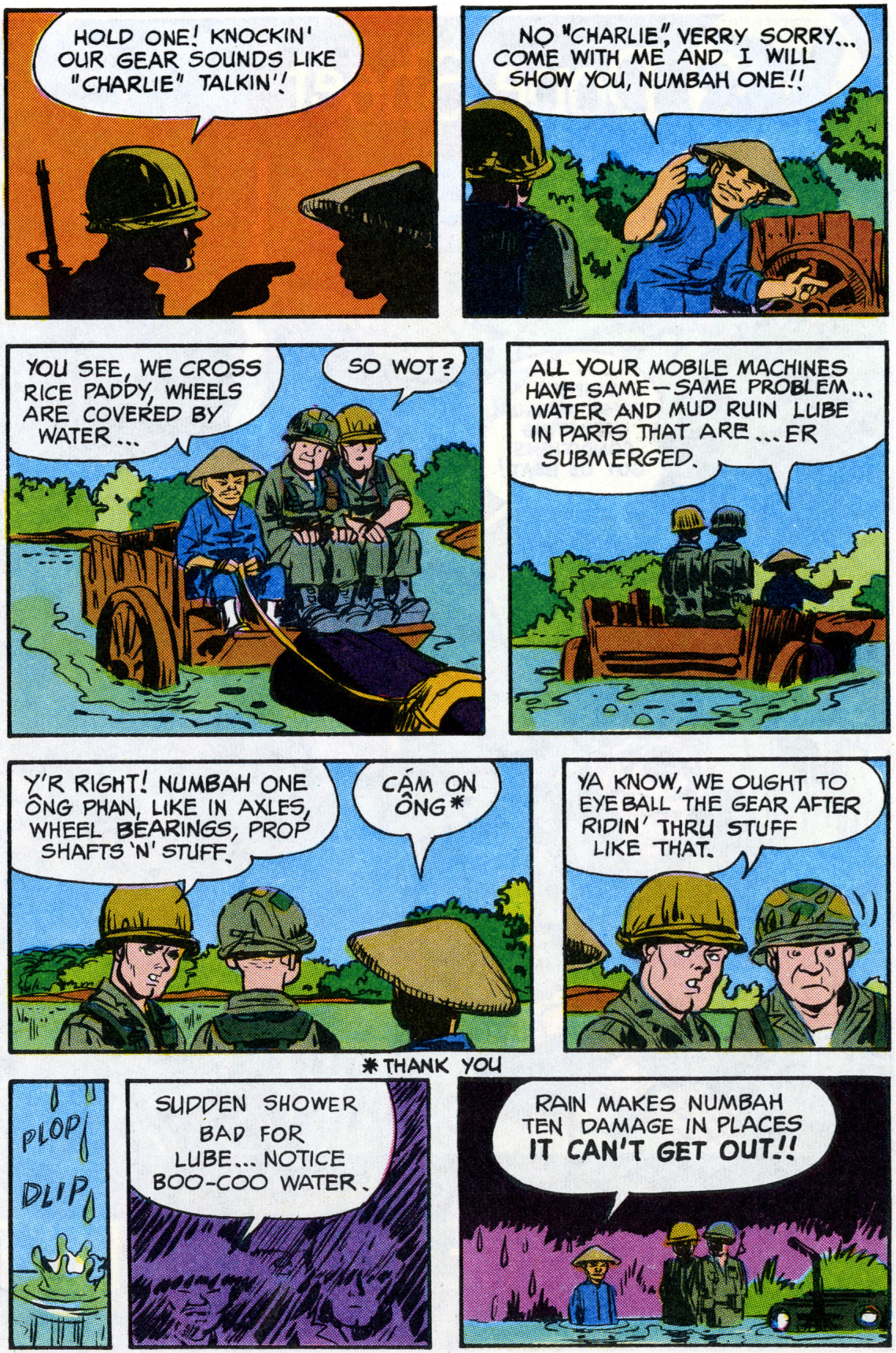
AR 1-32, Jan, DA Form 12-9 Administration.
AR 40-122, Feb, DA Form 12-9, Medical.
DA Cir 40-33, Feb, Prevention of Heat Injury.
DA Cir 310-27, Jan, Military Publications.
FM 24-21, Dec, Field Radio Relay Techniques.
SC 5420-93-CL-E23, Dec, Bridge Conversion Set, Fixed Bridge: Through Truss; 123 Ft to 153 Ft 9 In Span.
TB AVN 23-65, C1, Nov, Fixed and Rotor Wing.
TB AVN 24-16, Nov, Fixed and Rotor Wing.

HANDS OFF

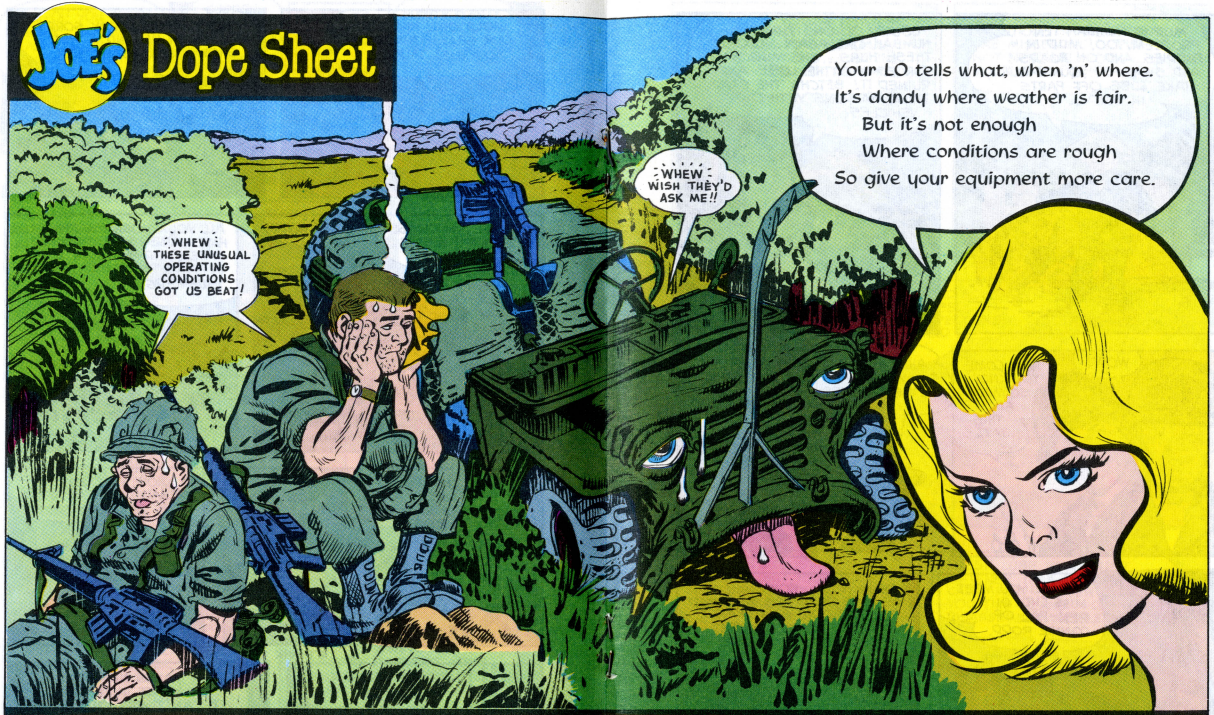
Do you see handy VC ammo souvenirs? Real enticing, huh? Well, better keep away from them. Some are real mean . . . such as one made just like a regular GI hand grenade. You squeeze the handle which you think is a safety lever and P-O-W! You bought it.


JOE'S DOPE
THAT'S OIL, BUDDY!
SQUEAK
BANG
? ? ?
RATTLE
GRIND
SQUEAK
CHOU-OI! ÔNG-PHAN. HOW-FAR-CLICKS TO DINGH BAT?
YOU COMPREN-AY???
YEH, YEH, IT'S THREE KILOMETERS. BUT YOU ARE VIT NGÔI *.
?
*SITTING DUCKS
WHEN THE NOISE OF YOUR VEHICLE IS HEARD BY V C YOU AND "JIP" ARE NUMBAH TEN.
YOU KNOW SHORT CUT?
YES!! BUT USE BUFFALO GREASE TO QUIET NOISE IN YOUR MACHINE.
HE MEANS LUBE!!
FOOEY! WE AIN'T GOT NO TIME FOR A FANCY L O EXERCISE!

CHOI-OI! YOU SPEAK IN HASTE...OUR COUNTRY IS AS YOUR TM SAYS, UNUSUAL OPERATING CONDITIONS!
SUDDEN MONSOONS! BOO-COO WET.
NUMBAH TEN HOT.
PLENTY, PLENTY ER...AS YOU SAY... HUMID.
MONSOON MAKES MUD. DRY SEASON MAKES DUST.
ALSO PLENTY SAND AND DIRT.
BOO-COO FORDING IN FRESH AND SALT WATER.
BIG DEAL! I JUST GOT HERE 'N' I DON'T THINK THE CONDITIONS HERE ARE HARD TO GET USED TO.
Phãi*, 'CAUSE I'M A "SHORT TIMER" AND I GOT USED TO IT, NO SWEAT.
AHHH SO! BUT... YOUR EQUIPMENT CAN'T ADJUST!! YOU MUST MAKE THE ALLOWANCES FOR IT.
*THAT'S RIGHT
YOU SEE, ALL LUBRICANTS NUMBAH TEN! UNDER BOO-COO BAD CONDITIONS.
BUFFALO GREASE
EVEN IN YOUR FORMIDABLE MILITARY MACHINES, YOUR TRUCKS, GENERATORS, EVEN YOUR FLYING DRAGONS!


HOLD ONE! KNOCKIN' OUR GEAR SOUNDS LIKE "CHARLIE" TALKIN'!
NO "CHARLIE", VERRY SORRY... COME WITH ME AND I WILL SHOW YOU, NUMBAH ONE!!
YOU SEE, WE CROSS RICE PADDY, WHEELS ARE COVERED BY WATER...
SO WOT?
ALL YOUR MOBILE MACHINES HAVE SAME—SAME PROBLEM... WATER AND MUD RUIN LUBE IN PARTS THAT ARE...ER SUBMERGED.
Y'R RIGHT! NUMBAH ONE ÔNG PHAN, LIKE IN AXLES, WHEEL BEARINGS, PROP SHAFTS 'N' STUFF.
CÁM ON ÔNG*
YA KNOW, WE OUGHT TO EYEBALL THE GEAR AFTER RIDIN' THRU STUFF LIKE THAT.
*THANK YOU
PLOP
DLIP
SUDDEN SHOWER BAD FOR LUBE... NOTICE BOO-COO WATER.
RAIN MAKES NUMBAH TEN DAMAGE IN PLACES IT CAN'T GET OUT!!

JOE'S
Dope Sheet
WHEW! THESE UNUSUAL OPERATING CONDITIONS GOT US BEAT!
WE HAVE THE WORLD'S BEST EQ
IF YOU WANT TO DISPLAY THIS CENTERPIECE ON YOUR BU



IF YOU WANT TO DISPLAY THIS CENTERPIECE ON YOUR BULLETIN BOARD, OPEN STAPLES, LIFT IT OUT AND PIN IT UP.

QUIPMENT ...*Take care of it*

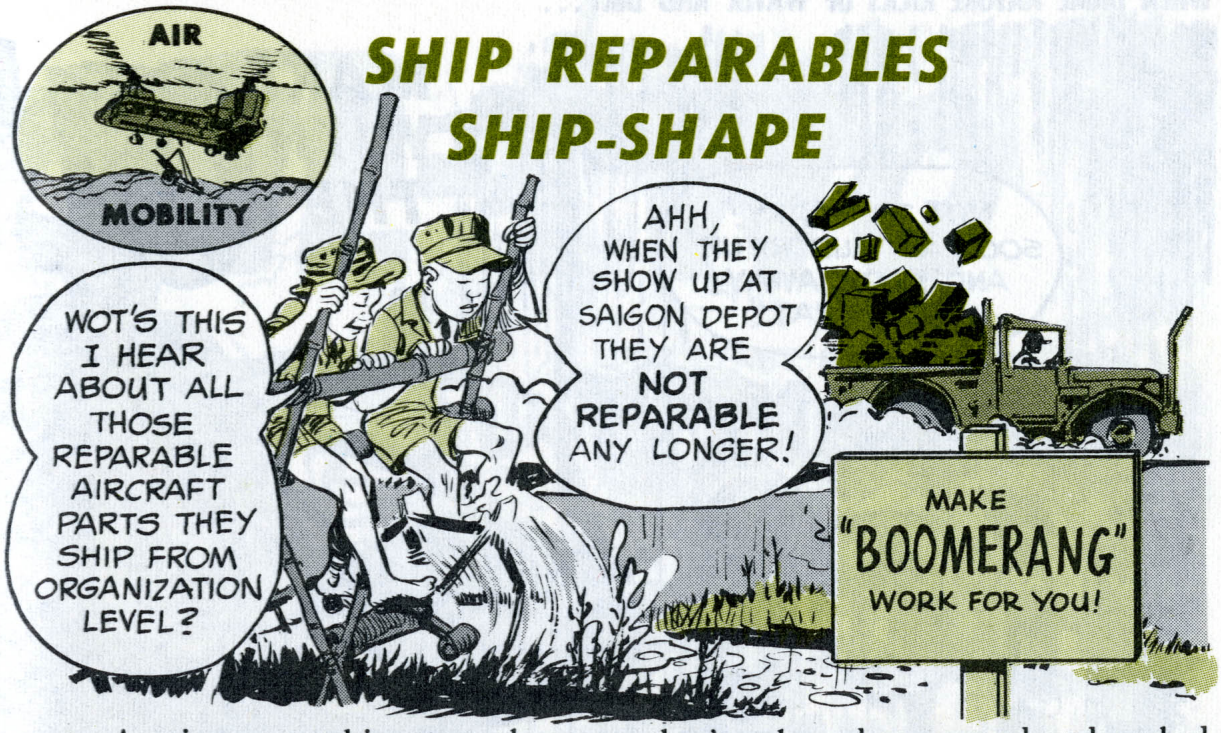
LLETIN BOARD, OPEN STAPLES, LIFT IT OUT AND PIN IT UP.

MUD IS NUMBAH TEN PROBLEM, TOO! MUD IN PADDIES AND ON ROADS AND SWAMPS... QUICK-QUICK TAKE LUBE OFF PARTS IN MUD...
YESSIR! OL' ÔNG PHAN IS NUMBAH ONE AGAIN... LOOKIT THESE HUBS... THE MUD WAS FORCED INTO THE LUBE AND RUINED IT! BETCHA THE SAME THING HAPPENS WITH OUR VEHICLES.
WOW!
HOW COME YOU KNOW SO MUCH ABOUT THIS JAZZ?
AHHH—SOOO I HAVE NUMBAH ONE INSTRUCTRESS.
I'VE HEARD THAT ONE... HE'LL PROBABLY SAY CONNIE RODD OR SOMETHIN'.
PLEASE YOU MEET MISS CHOI OI **PEN-PAL** OF CONNIE RODD.
THANK YOU... NOW! AH! AS MISS RODD HAS INFORMED ME, **PERIODIC** MAINTENANCE IS FINE STATESIDE ... BUT HERE, THINGS ARE QUITE DIFFERENT.'

YOUR NOISY VEHICLE HAS HAD **PERIODIC** MAINTENANCE AND LUBRICATION FOR **NORMAL** CONDITIONS – LIKE THE **LO** AND **TM** SAYS!
BUT REMEMBER... CONDITIONS IN THE ORIENT ARE MISLEADING... THEY'RE NOT **NORMAL** FOR YOUR EQUIPMENT.
YOUR MACHINES AND EQUIPMENT ARE MADE OF STEEL... IT NEEDS EXTRA INSPECTIONS, LUBRICATIONS AND SERVICING.
YOU CAN ADJUST TO THIS COUNTRY, BUT YOUR EQUIPMENT CAN'T -- **YOU** MUST MAKE ADJUSTMENT FOR IT...
FRESH LUBE IS A **MUST**... OFTENER THAN THE **LO** CALLS FOR!!... EVEN IF FOR YOU THIS MEANS A COMPLETE DISASSEMBLY AND CLEANING.

* PLEASE SAY IT AGAIN

SHIP REPARABLES SHIP-SHAPE



Anytime you ship parts be sure they're cleaned, preserved and packed right or they'll go to pot in transit.

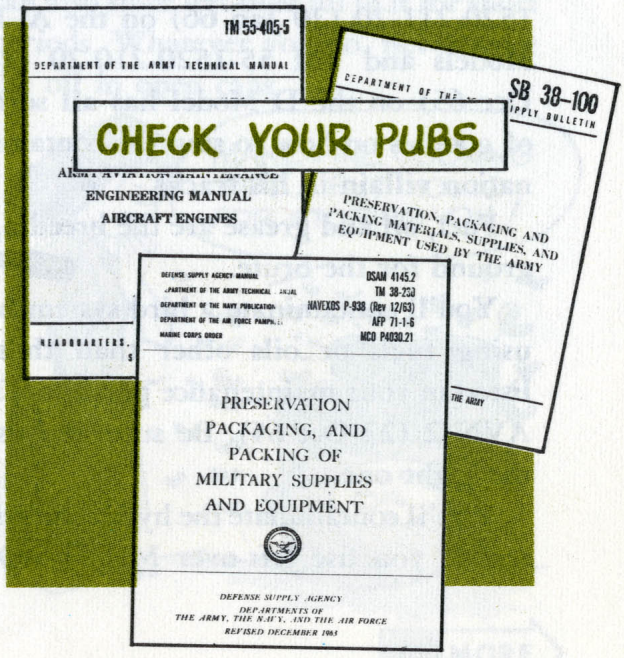
Take a carburetor, for example. Fuel left in the chambers will oxidize (mix with air) to form a corrosive action that eats away the metal . . . can ruin a $$$$$ carburetor just sitting there.

Best be sure you drain the carburetor and squirt some engine oil (MIL-L-6082) into the fuel passages, according to the poop in TM 55-405-5 (16 Sep 66) on Aircraft engines. SB 38-100 (28 Sep 66) on preservation and packing materials has a good listing of all supplies needed by DS units to do the job.

Pack accessories such as starters, generators, carburetors, fuel pumps and instruments in sturdy containers with plenty of packing on all sides including top and bottom.

You'll find the word on using the preservation and packaging supplies in TM 38-230 (16 Dec 63).

One more point before you close the lid on any shipment . . . put in all the necessary paperwork.



WHEN DAME NATURE KICKS UP WATER AND DIRT...

That's the aircraft mechanic's maintenance problem — contamination from weather. With your bird in the open it takes a lot of savvy to beat the elements.

EYE MAINTENANCE PUB

Suppose you crew a Huey. TM 55-1520-211-20 (20 Jan 66) on the A, B Models and TM 55-1520-210-20 (28 Dec 65) on the D Model has all sorts of goodies on how to stop the contamination villain in his tracks.

Fuel, oil and grease are the breeding ground for the brute.

You'll contaminate a bird system by using fuels or oils other than those listed in your maintenance pub and TB AVN 2 (27 Oct 65). Be sure you use the right one.

You'll contaminate the hydraulic system if you use left-over MIL-H-5606

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MAKE WITH THE OL' ONE-TWO

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You'll contaminate the hydraulic system if you use left-over MIL-H-5606 hydraulic oil from open cans. This dirty oil ruins seals, clogs strainers and causes leaks which will sideline your bird for maintenance.

There's a good chance contaminated hydraulic oil will show up in the form of leaking servos in the 3 cyclic flight control hydraulic cylinder assemblies. To head off contamination, open a new can each time, fill the reservoir and toss the oil and can . . . no sense asking for trouble!!

Then there's the T-53 engine and transmission synthetic oil, MIL-L-7808 — that stuff gets contaminated by water if you look at it cross-eyed.

To be on the safe side, pour the 7808 oil into your bird thru a 10-micron filter to get rid of any lint, metal slivers and dirt that might have entered the can during manufacture. Your pre-oiler does a first rate filtering job and you can also store left-over oil in it for short periods. Whatever you do, never store the oil in open cans.

MORE

ONE-TWO

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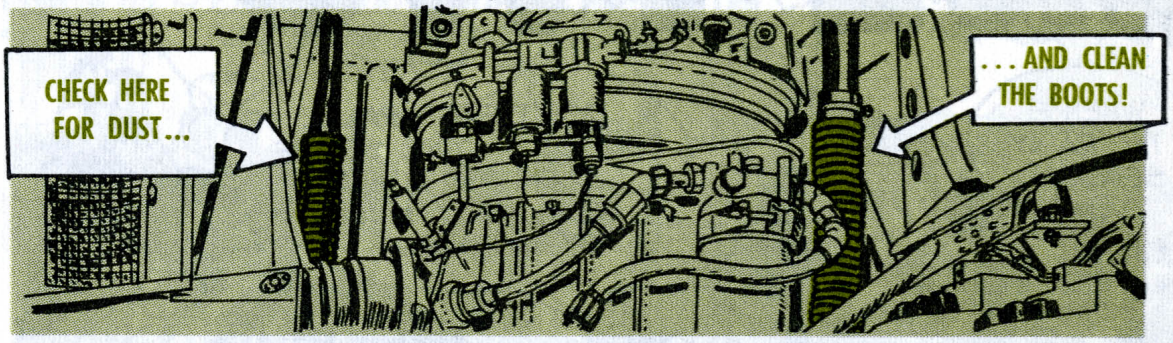
MORE

KEEP BIRD CLEAN

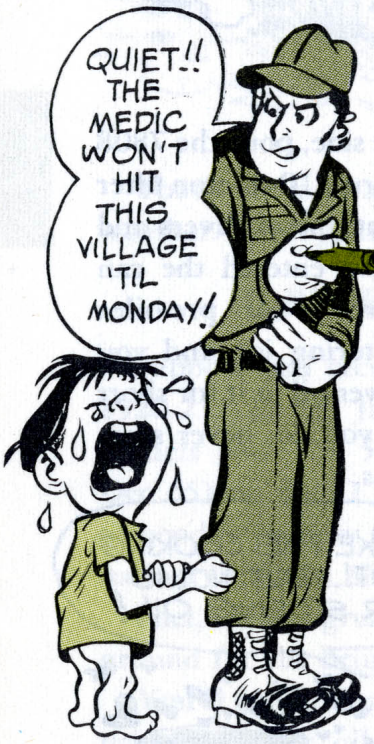
As for dirt and gook caused by clouds of dust on a big lift, use a brush to dust all places where dirt might seep past seals.

In particular, dust around the top of the 3 cyclic flight control cylinder assemblies. There is also a rubber boot, FSN 1680-923-2926 in TM 55-1520-210-35P



(Jan 67) that covers these assemblies to help you in your battle against the contamination villain. MWO 55-1520-211-20/32 (19 Sep 66) puts the boots on your B Model.

He's sure to show up in bearings, which is the reason why your maintenance officer may increase the frequency of lube jobs.



LUBE HANGER BEARINGS

How about those Huey tail rotor driveshaft hanger bearings, P/N 204-040-615, that run out of grease after a couple-three hundred hours . . . with no grease fitting to plug a gun into yet??

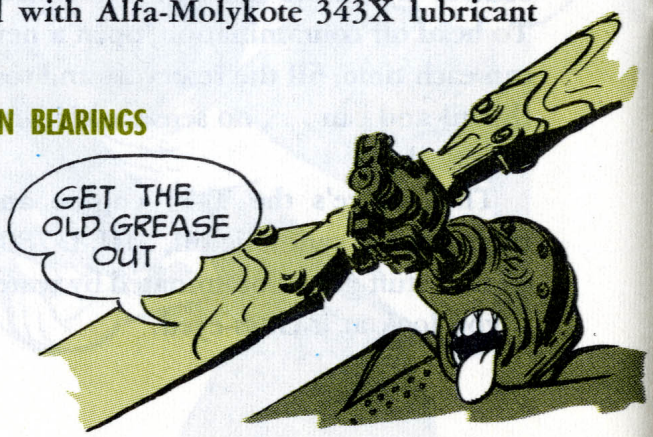
No sweat. You might dust off your copy of TB 750-931-1/2 (28 Dec 66) and focus on page 44, para 68. By using a little know-how you can braze a modified No. 16 or No. 18 hypodermic needle to the grease gun adapter and give those bearings the needle.

Another way to lube the bearings is to use a hypodermic syringe according to the poop in para 7-100, page 7-33 of TM 55-1520-210-20.

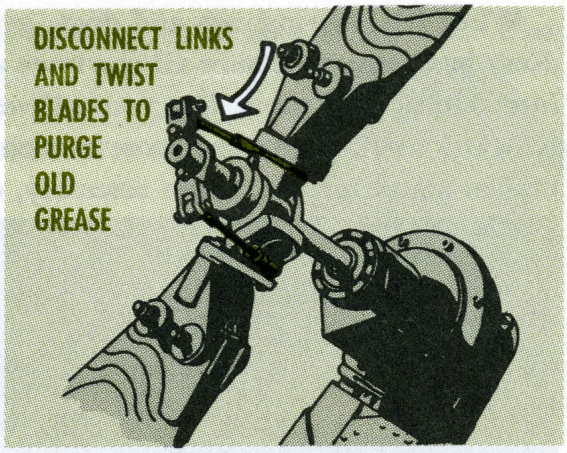
If you have the new hanger bearings, P/N 204-040-623-1, these babies are sealed with Alfa-Molykote 343X lubricant and can't be lubed.

PURGE TRUNNION BEARINGS

Getting the contamination villain out of bearings can be a bit of a chore, especially on oscillating bearings such as the Huey tail rotor trunnion bearings.

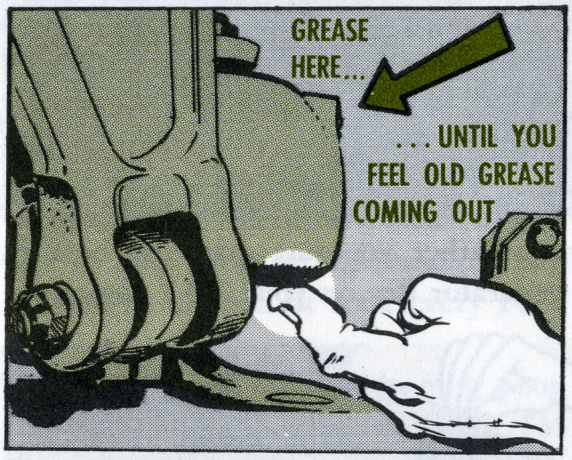


The tail rotor only twists thru a 12-degree angle during operation, which means a lot of grease in there is not being used. It can build up and harden like a rock. Then each time you purge the cavity with new grease the old grease won't budge so your grip bearings get short-changed. You know what that means—shorter bearing life . . . maybe a frozen bearing which doesn't make for a healthy situation!!



PURGE TAIL ROTOR GRIP BEARINGS

How do you purge the bearing cavity? Well, how about disconnecting the pitch change links on the next Periodic and rotating the tail rotor blades 360-degrees 3 or 4 times for a real purge job? That's savvy, man!



For any good purge job remember to make with the grease gun until you see or feel the old, dirty grease coming out.

Like, for example, be sure you make the finger test on the swashplate outer ring when you make with the grease gun. Then you know it's greased.

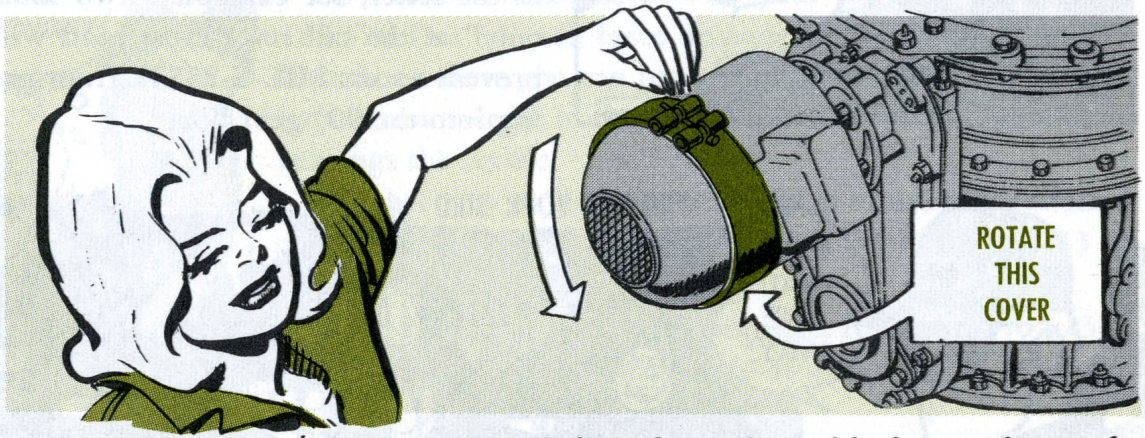
Remember to follow your lube charts to the letter, for example, "two shots only" at the tail rotor cross head will prevent excess MIL-G-25537 from going into the 90° gear box.

It doesn't take long for an on-the-stick mechanic to come up with solutions to dirt and water problems in an exotic, tropical land. You stay soaked from the inside-out during the dry season and from the outside-in during the rainy season, which means your bird is also taking it on the chin.

MORE

When it's pouring cats and dogs, get your bird under cover if you can. If you don't have cover, be sure all cowlings are closed to help keep water from getting into critical bird parts. Use your all-weather protective covers at the tail pipe, forward cowl, pitot tube, nose section, forward cabin, aft cabin, main rotor blades, stabilizer bar, pylon assembly, tail rotor blades and tail rotor hub.

'Course, when you're operating in wet weather you just grin and bear it. Now, here's a tip on keeping the main generator dry on your T-53 engine.

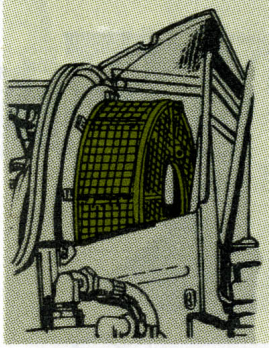


If brush cover, P/N 30010-1035, is bolted together with the opening at the top of the generator, slip the cover 180 degrees so that it's at the bottom. Then water won't leak into the generator and short out the works.

FILTER FACTS

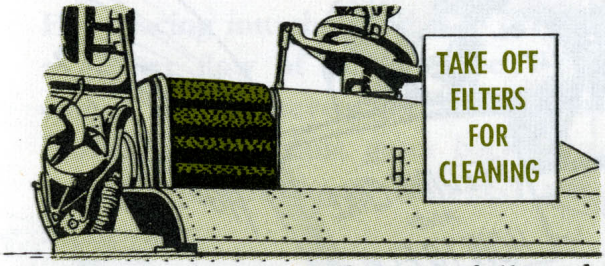
During the dry season, with those clouds of dust, be sure you've got a good thing going for you—filters!

Here's the number game for requisitioning screen mesh kits for your Huey B model T-53 Engine air inlet screens.



Screen Mesh Kit P/N 204-706-073-1, FSN 1560-921-6507
For
Screen P/N 204-060-217-1, FSN 1560-923-6027

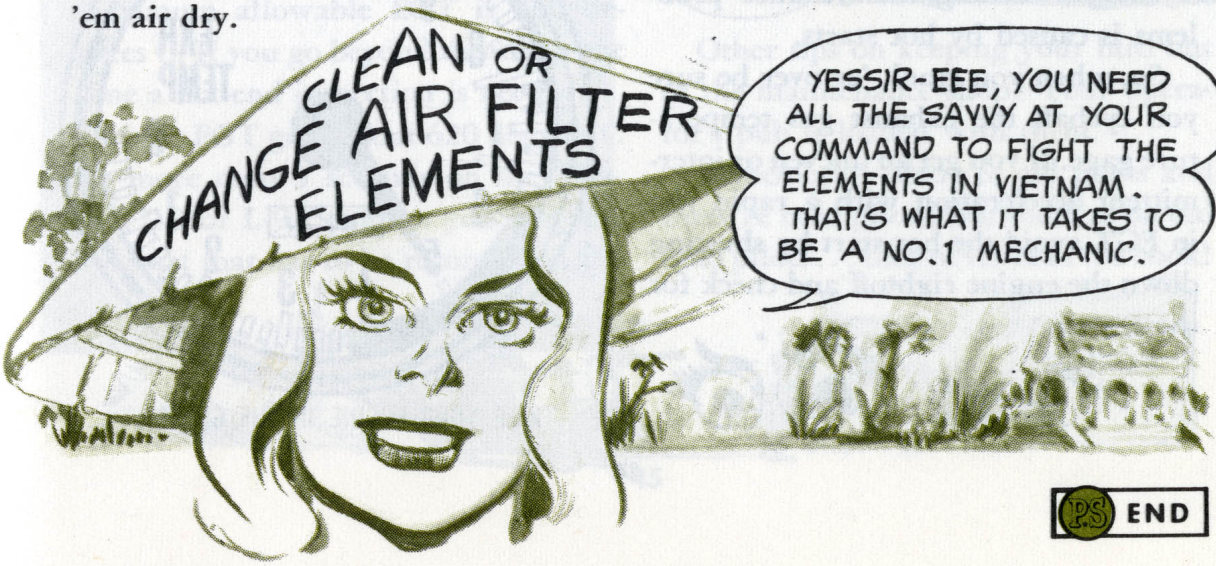
Screen Mesh Kit P/N 204-706-074-1, FSN 1560-915-5964
For
Screen P/N 204-060-210-101, FSN 1560-956-9920



You may have the screen mesh on your Huey B Model, or an air-inlet filter on your D Model to protect your engine from FOD, but they both have one point in common. They collect dirt that has to be cleaned off so part of the engine air intake is not blocked off.

Detergent soap and water, followed by a clear rinse should do nicely for cleaning the screen mesh and air inlet filters. How often you make with the soapsuds will depend on the dust kicked up in your area of operation. They should be cleaned at least every Periodic.

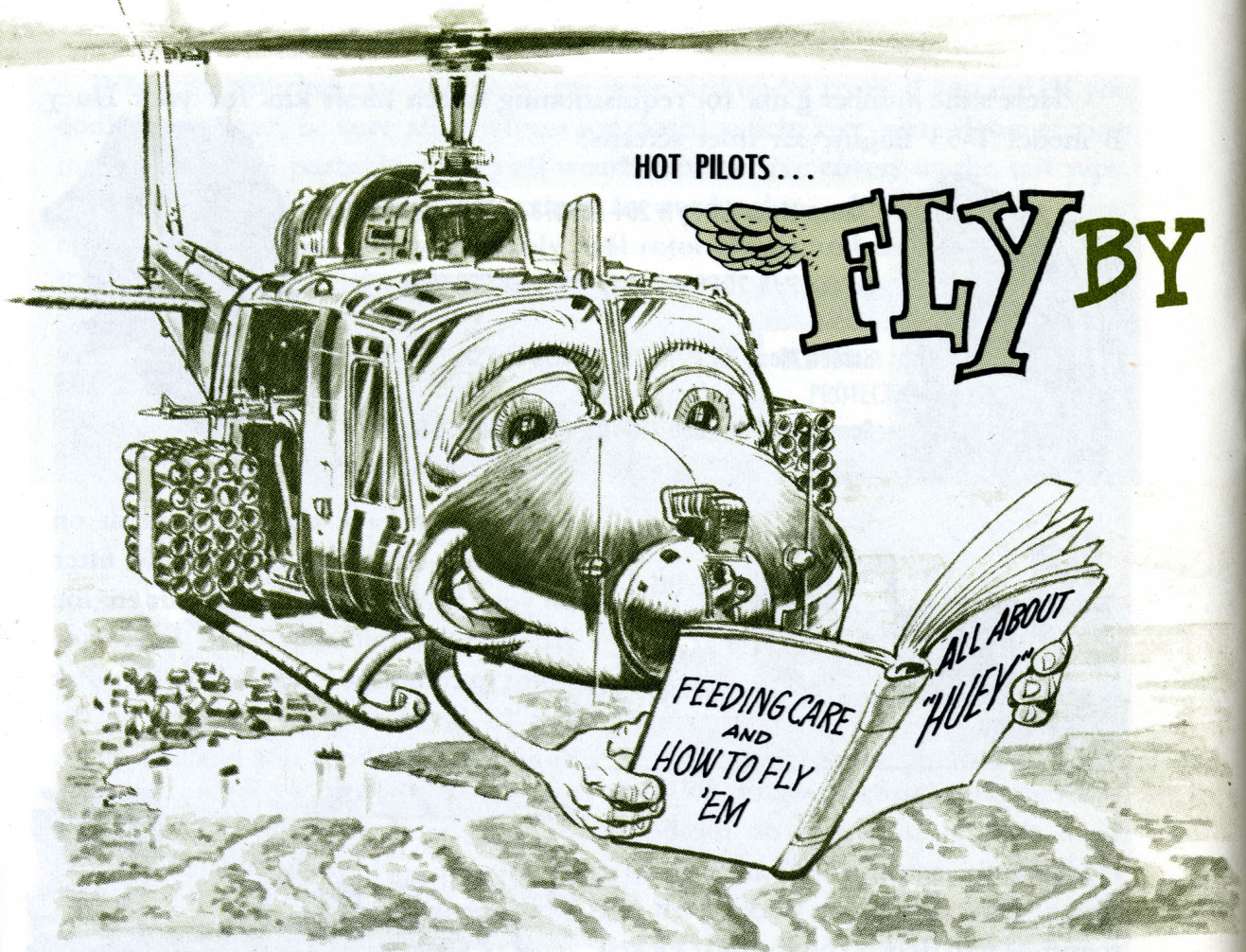
You'll find the filter cleaning poop for your D Model in para 5-51 of TM 55-1520-210-20. Remember, tho, don't use compressed air to speed up the drying because it'll damage the filters. Let 'em air dry.



PS END

HOT PILOTS . . .

FLY BY



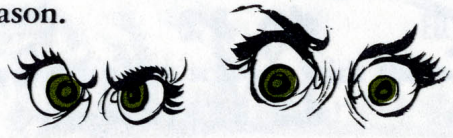
So you're a hot pilot now and can wheel that Huey of yours around with the best of 'em? Right?

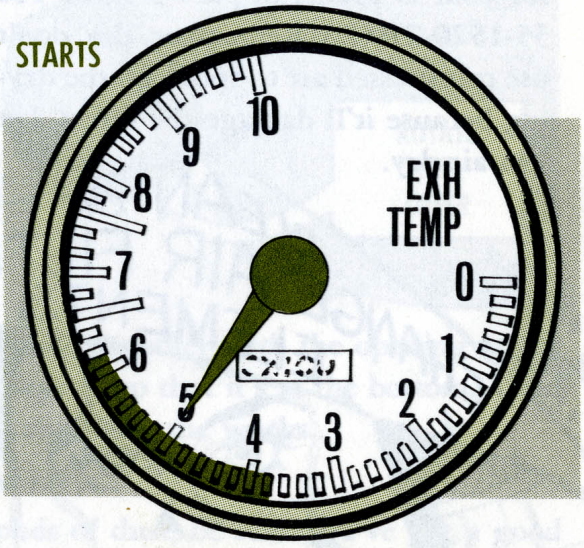
Still, you want to play it close to the vest and fly by the operator's manual. Otherwise, bent-up bird parts and special inspections will keep that valuable bird sidelined from the fracas.

AVOID HOT STARTS

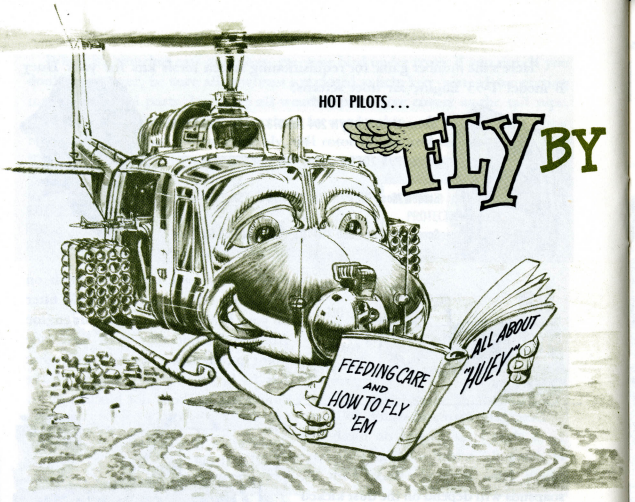
One of the big maintenance problems is caused by hot starts.

So, when you crank 'er over be sure you eyeball the exhaust gas temperature gage. If you get an uneven or intermittent acceleration with a rapid rise in EGT avoid the hot start by shutting down the engine rightoff and check for the reason.





KEEP YOUR ENGINE IN THE GREEN



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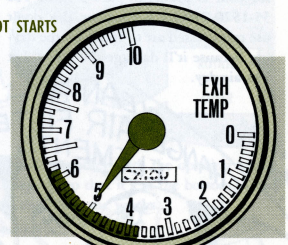

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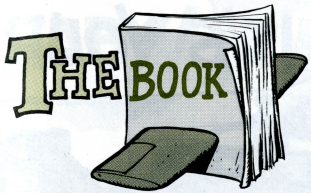


The main reason for parking your Huey facing into the wind is to permit a greater flow of air into the T-53 engine and to prevent the wind from blowing hot exhaust gases back into the tail pipe, causing a rise in EGT and a hot start.

Hot starts can also be caused by an obstruction — rags, paper, grass — in the air inlet . . . your walk-around check is mighty important.

Other causes of hot starts are a low battery (when you press the starter trigger and the voltage drops below 14 volts stop the start and have the battery recharged or replaced), starting fuel solenoid valve fails to shut off, or the fuel control is faulty. By-the-book starting procedures are a must.

During your start or acceleration the maximum allowable EGT is 760 degrees C. If you go beyond this temp one time a hot-end inspection is needed.

If the EGT goes about 620 degrees C for more than 5 seconds on the T53-L-5, L-9 or L-9A engines you've got a hot start that has to be recorded on the DA Form 2408-13. After **three** of these starts a hot-end inspection is needed.

But if you exceed an EGT of 650 degrees C for more than 5 seconds **one** time on the T53-L-11 or L-13 engine, the hot-end gets the big look.

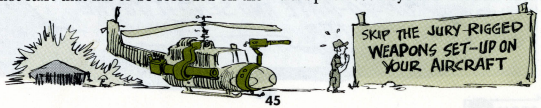
LEAVE ROOM TO MANEUVER

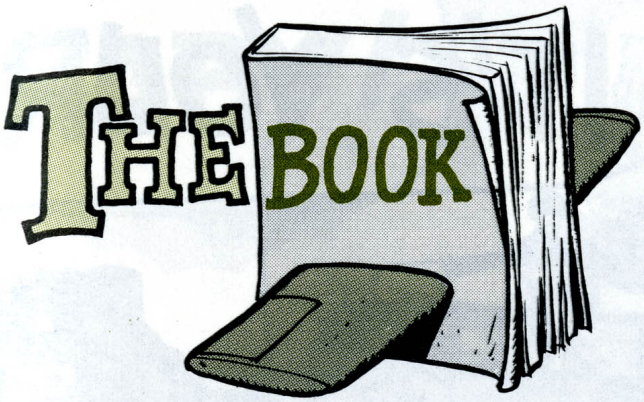
When you set your chopper down in strange places you've got your hands full looking for level ground, ducking trees and man-made obstacles plus whatever Charlie lets loose with.

Still, you want to leave yourself room to maneuver. So, when you hover don't back up because you can't see behind you . . . more tail rotor blades get chopped up that way! Instead, rotate your bird and head out where you know the flight path is clear.

Other tips on keeping your bird out of the maintenance shop? Your operator's pub is loaded with them.

Remember — there're old pilots and there're bold pilots. But there're no old bold pilots . . . they never read the book!





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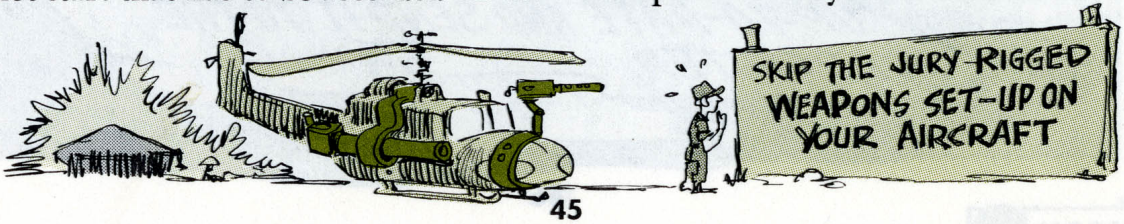

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As tough and modern as it is, your truck still depends on you, the driver. It's as helpless as a baby against sloppy driving and maintenance habits.

YOUR TRUCK . . .

IT'S YOUR BABY!

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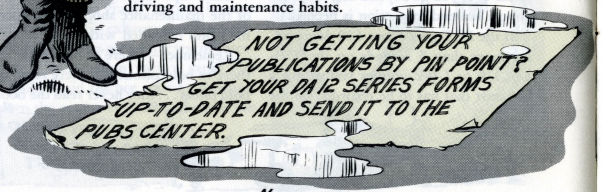

GROUND MOBILITY

If you do right by your truck, it'll sure do its best to help you accomplish your mission, to get out there and back and to give you a few headaches. But poor operation and maintenance habits will just naturally backfire—giving you trouble where you didn't have any before and making big problems out of little ones.

Here're the things you can do to keep your truck running—so she doesn't break down on you without warning:

Under the hood—with and without the engine running, look for any leaks, water hoses, hydraulic connections, oil connections, fuel connections; loose or broken air cleaner tubing; loose air cleaner oil pan; ready to break V-belts.

MORE

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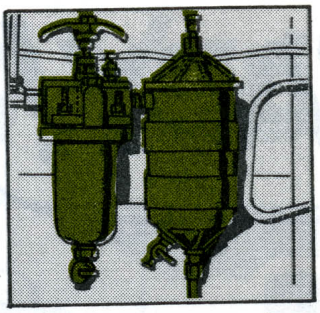
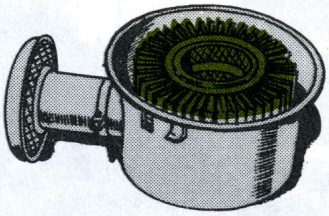
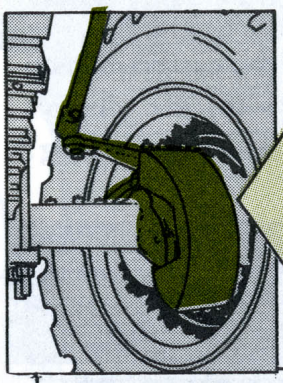
P.S. MORE

Service your fuel filters every day, at least.



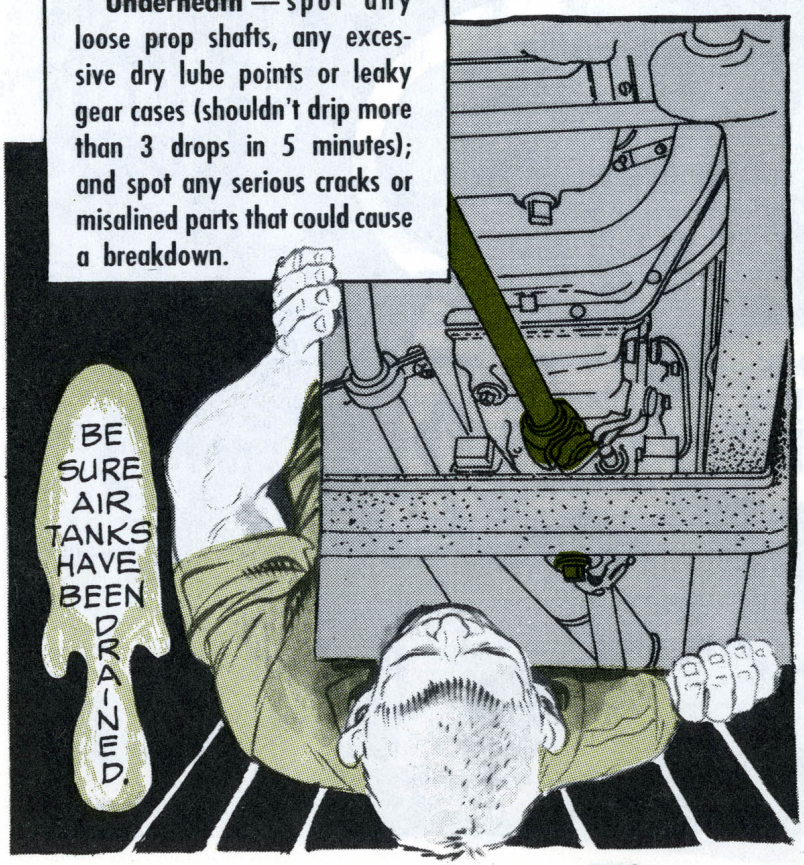
A rough-running engine may be traced to something as simple as a dirty air cleaner. Whether you've got the oil-type or dry-type, your filter has just one important duty — to keep dirt out. But air has to get thru. Your engine can't run without air. This filter needs cleaning or replacing more often in dusty operations.





Front wheels and behind 'em — Look for leaky hydraulic wheel cylinders; indications of loose wheel bearings, loose steering linkage, any cracked parts like the steering relay bracket.

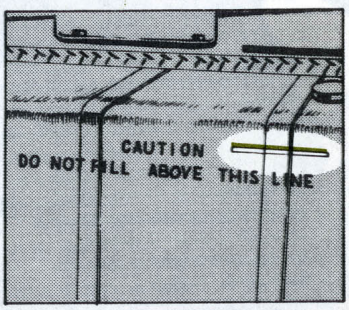
Underneath — spot any loose prop shafts, any excessive dry lube points or leaky gear cases (shouldn't drip more than 3 drops in 5 minutes); and spot any serious cracks or misalined parts that could cause a breakdown.



SPECIFIC MUSTS . . .

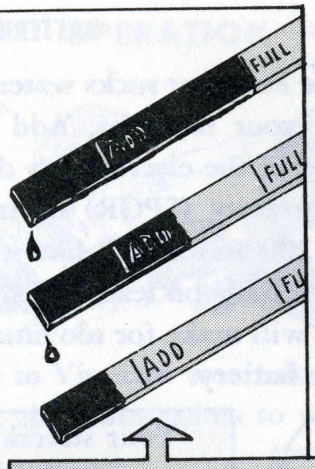
FUEL

Keeping fuel right up to the mark cuts down on the space where moist air condenses. Clean the hose or can nozzle and around the filler opening before refueling. Look for breaks or clogged holes in the tank fuel strainer — clean it or replace it.



OIL

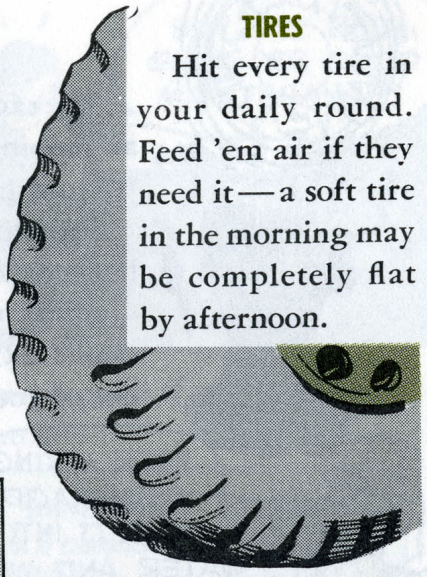
Check crankcase level at least once daily. Start the day with your oil up to the FULL mark. In heavy operations, check more often and add oil if it drops below the ADD mark. Keep an eye on your oil pressure gage—a sudden drop means a quick stop to see what's wrong.



STOP!! ADD OIL . . . IF IT DROPS AGAIN DURING DAY . . . FIND OUT WHY

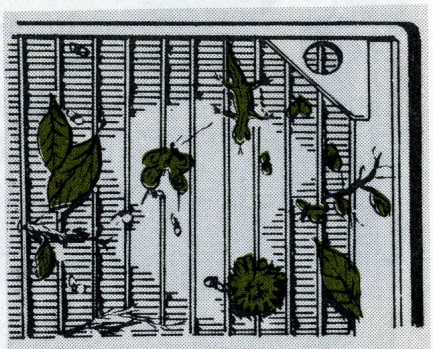
TIRES

Hit every tire in your daily round. Feed 'em air if they need it—a soft tire in the morning may be completely flat by afternoon.



COOLING SYSTEM

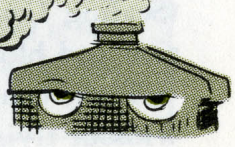
Even with the pressure cap on your radiator, tropical heat and operating heat manage to evaporate a lot of your coolant. Add water (the cleanest you can find, like rain water) if it's low. Take the cap off slowly so you don't get a snootful of hot water.



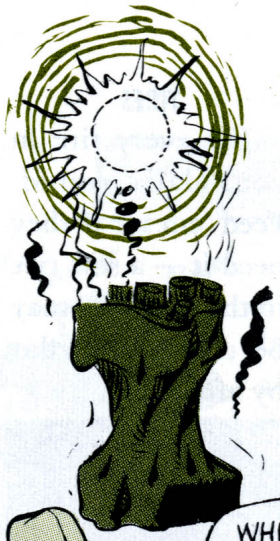
Clean the bugs, leaves and any other junk out of the cooling fins. Straighten bent fins and look close for leaks caused by cracks or bullets.

Rust or a lot of messy stuff in your radiator calls for draining and flushing the cooling system and refilling (let 'er cool before putting in fresh water). Add corrosion inhibitor (FSN 6850-753-4967), but dissolve it first in hot water or it'll plug your radiator. Use 6 ounces of inhibitor to every 12 quarts of water. Give your cooling system this treatment at least every 6 months and it may not need any more.

A real bad case of cooling system constipation may call for use of **cleaning compound (FSN 6850-690-5561).** TB ORD 651 (Apr 64) tells you what to use and how.



PS MORE



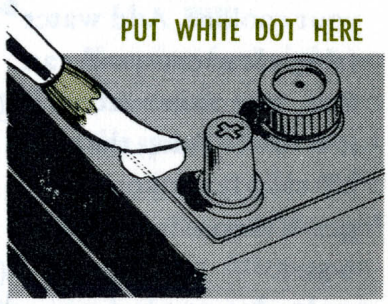
BATTERIES

The same heat that sucks water out of your radiator works at sapping your batteries. Add water (again, the cleanest you can get) if the electrolyte's down to the plates.

Specific gravity (SPGR) of tropical electrolyte must be between 1.200 and 1.225, like it says in TM 9-6140-200-15 (Jul 58), the bible on lead-acid storage batteries. Any higher than 1.225 will make for too much heat and cook the stuffin' out of your battery.

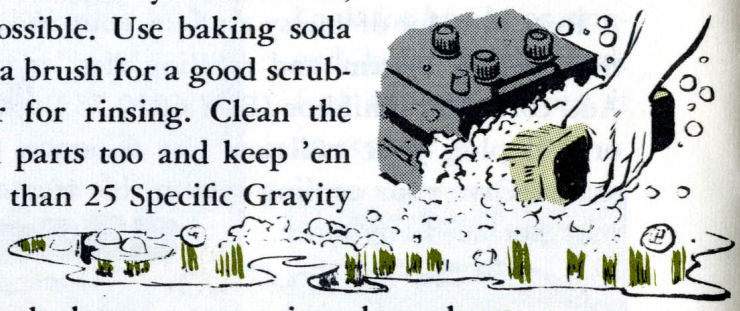
Your stateside electrolyte SPGR is 1.280 — too strong. But you can make tropical electrolyte by diluting 1 gallon of that 1.280 electrolyte (FSN 6810-249-9354) with 1 quart of distilled water.

In case you're issued straight sulfuric acid (1.835 specific gravity), instead of electrolyte (1.280 SPGR), you can come up with tropical electrolyte (1.225 specific gravity maximum) by mixing 11 parts of distilled water with 3 parts acid. Do the mixing in an acid-proof container, like glass or hard rubber.



When your battery's fixed up with tropical electrolyte, paint a 1-in diameter white spot on top of the battery near the positive post (that's the fatter post). Then, anyone checking the specific gravity will know it's supposed to be between 1.200 and 1.225.

Moisture and dirt are 2 other big enemies of your batteries, so keep 'em as clean and dry as possible. Use baking soda (FSN 6810-264-6618) in water and a brush for a good scrubbing and then lots of fresh water for rinsing. Clean the holddowns and other nearby metal parts too and keep 'em painted. Match batteries — no more than 25 Specific Gravity points or 0.2 volts difference.

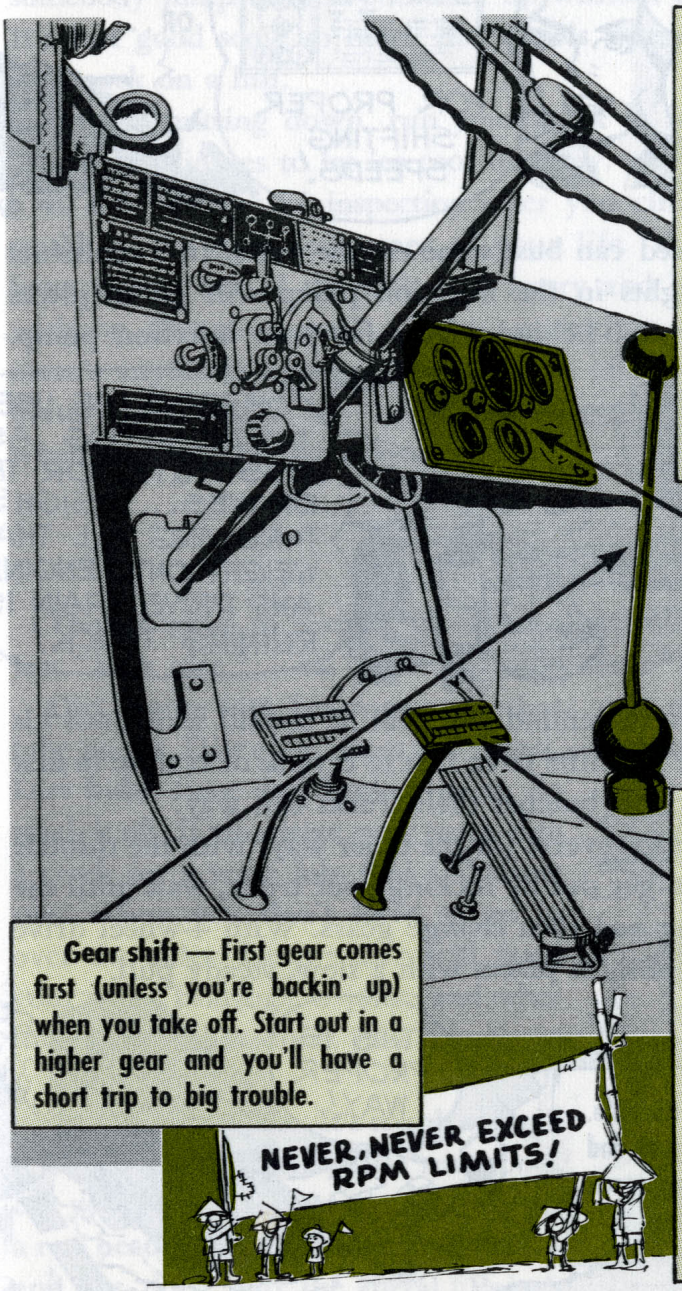


GAA is good enough for coating the battery connections, but asbestos grease (Sealing Compound, FSN 8030-598-3059) is even better for heading off corrosion and blocking moisture.

Tight connections are a must — the battery's got enough against it already without trying to feed juice thru loose connections.

OPERATION

All the good maintenance in Vietnam won't do much good if you don't operate your rig right. Here are the main points to watch—



Starter button—If your truck's got a compression ignition engine (Multifuel or straight diesel), your starter's got a big job and needs all the juice you can feed it. So don't be afraid of hurting the starter button when you press it—push hard all the time. A light touch or a slight letup will burn out the switch! Give 'er a breather—about a half-minute—if it won't start right away.

Instruments—Every gage and indicator is mighty important, telling you whether everything's OK or giving you a warning if something's wrong. Give 'em a good onceover before you take off and then every few minutes while you're rolling.

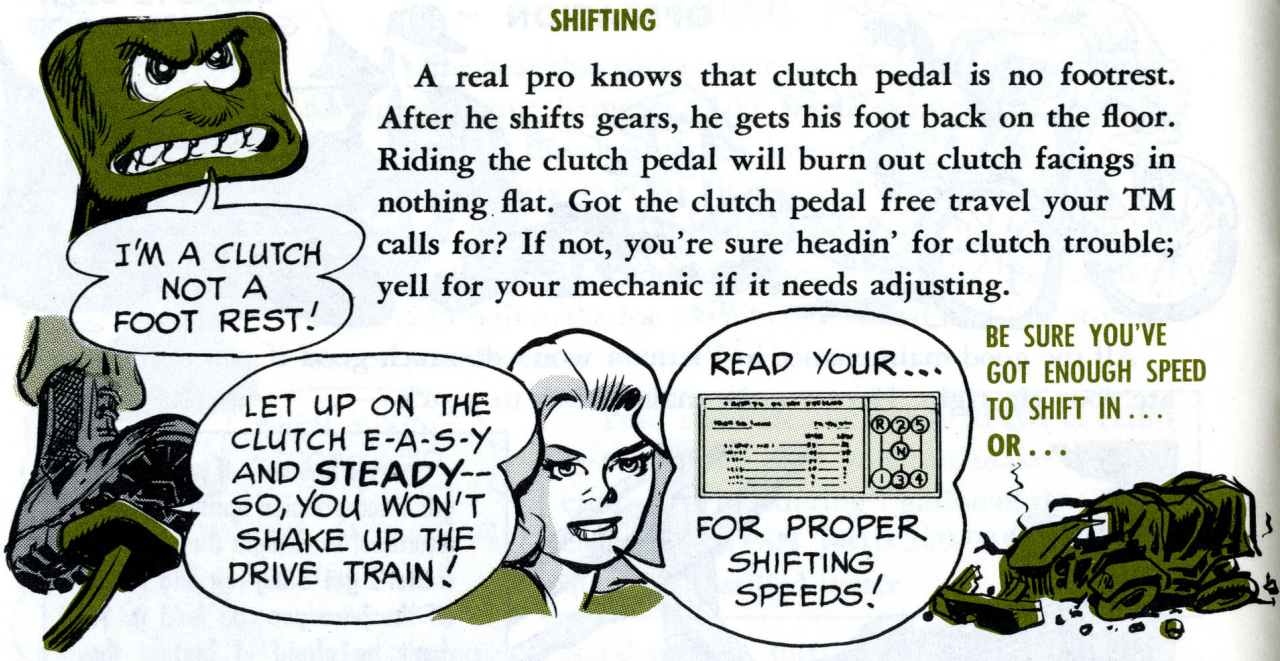
Gear shift—First gear comes first (unless you're backin' up) when you take off. Start out in a higher gear and you'll have a short trip to big trouble.

Air brakes—No air means no brakes, a real hair-raiser in an emergency. So, if your truck has air, or air-over-hydraulic brakes, wait for that buzzer to quit, before taking off, so you know you've got air. This air has plenty moisture in it; remember . . . your air tanks have to be drained at least once a day. You'll be surprised at how much water can build up in those tanks.

P.S. MORE

SHIFTING

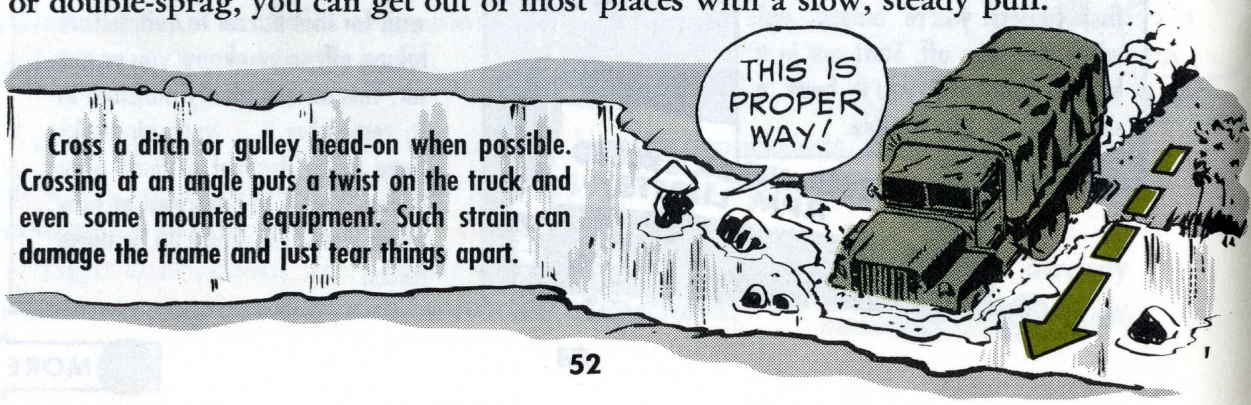
A real pro knows that clutch pedal is no footrest. After he shifts gears, he gets his foot back on the floor. Riding the clutch pedal will burn out clutch facings in nothing flat. Got the clutch pedal free travel your TM calls for? If not, you're sure headin' for clutch trouble; yell for your mechanic if it needs adjusting.



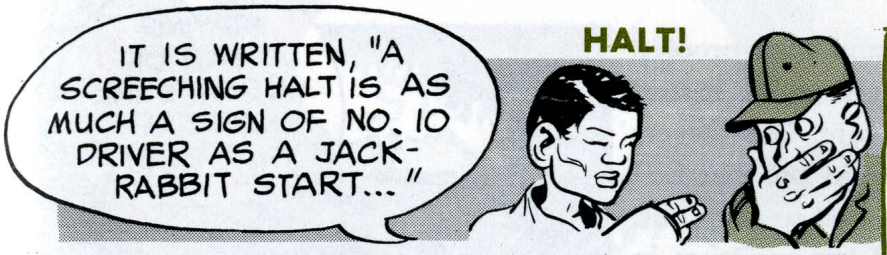
Downshifting at too high speed can bust some engine parts. In a multifuel engine truck, f'rinstance, flyweights in the injection pump will go to pieces from the shock — and that's a club-behind-the-ear for your injection pump.

It's an insult to a good driver to remind him that he should wait until his truck has stopped moving before he shifts from first to reverse or reverse to first —but, believe it or not, some drivers butcher their trucks this way.

Just as bad is shifting from first to reverse (or the other way) with the throttle out. If you're stuck and tryin' to get out by rocking your truck, wait until the transmission's gears stop spinning and then change gears. With 4-wheel drive or double-sprag, you can get out of most places with a slow, steady pull.



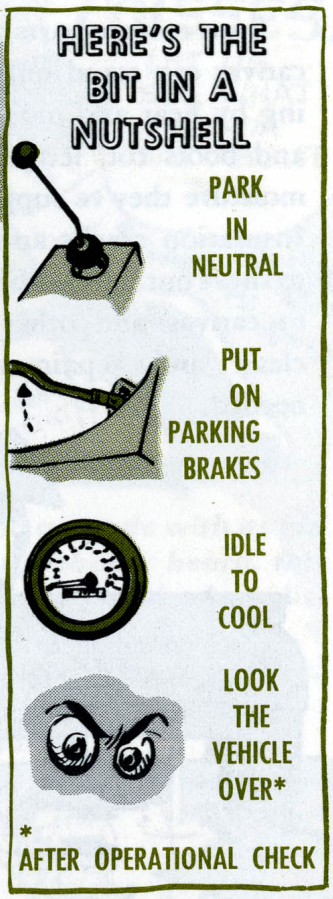
Cross a ditch or gulley head-on when possible. Crossing at an angle puts a twist on the truck and even some mounted equipment. Such strain can damage the frame and just tear things apart.



Park your multifuel or diesel truck in neutral with the parking brake to hold it. If it's parked in gear, an accidental bump from another vehicle could start it. Hydramatic trucks are parked in neutral too just in case somebody jumps in and starts 'er up without checking. It's just good sense to block the wheels when parking any truck on a hill.

Before shutting down, run your truck at idle for a couple of minutes to let 'er cool off slow.

A few minutes of inspection after you climb down could be the most important of your life. You might have to roll out of the sack in a hurry and get going with no chance to pull a before-operations check. If there's anything wrong—flat tire, low oil, radiator or battery leaks and so on—you want to know it now, not when you've gotta go.

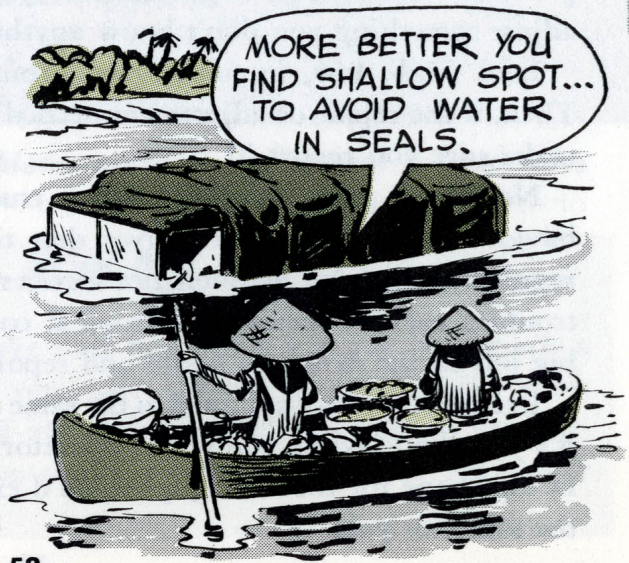


MAINTENANCE

There's more to a clean truck than just "look nice."

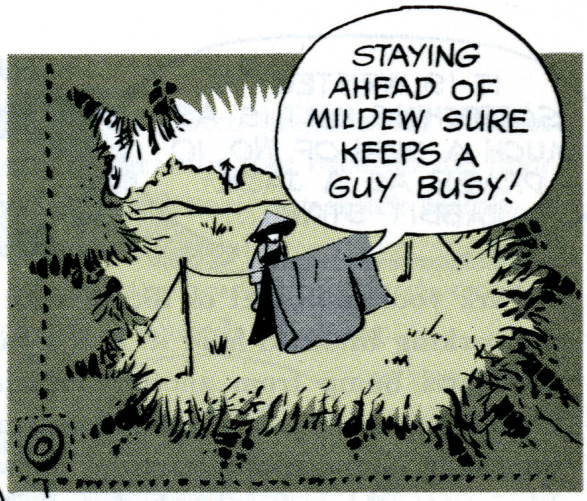
Dirt works into bearings and other lube points. Dirt clogs vents and filters. Dirt hides loose and broken parts. So wash it off. If you drive your truck into a creek for a wash job, find a shallow spot where you don't have to go in over the axles. Deep water will flood your wheel bearings, U-joints and other lube points that don't take kindly to water.

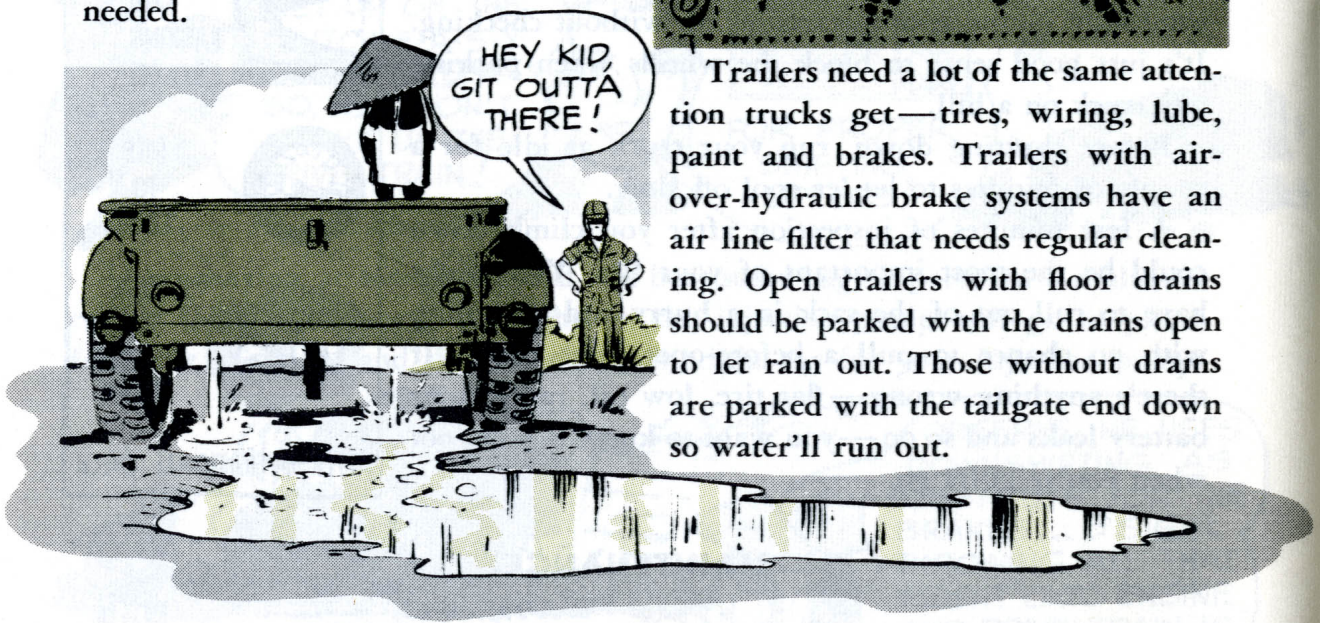
Dirt hides rust too. It's tough enough tryin' to keep up with little rust spots, but you'll go nuts fightin' rust if it gets a real headstart. It'll spread under paint and eat deep into the metal. Paint's bound to get scraped and chipped off here 'n' there, but it's no problem if you get in there quick with a good cleaning and fresh paint.



P.S. MORE

Even rubber parts and waterproofed canvas can stand only so much battering by heat and moisture. Dust covers and boots rot, letting in the dirt and moisture they're supposed to keep out. Insulation cracks and lets moisture in to short out wires. Mildew is like cancer to canvas and other fabrics. So you clean and repair and replace—as needed.





Trailers need a lot of the same attention trucks get—tires, wiring, lube, paint and brakes. Trailers with air-over-hydraulic brake systems have an air line filter that needs regular cleaning. Open trailers with floor drains should be parked with the drains open to let rain out. Those without drains are parked with the tailgate end down so water'll run out.

HOLD IT—REPORT IT

Except in a real emergency, stick to your TM, your Maintenance Allocation Chart and your local SOP. Small problems can become nightmares if you try to fix or adjust something you don't know anything about.

Look high, low, in, under and around for trouble. Then, if the repair or adjustment needed is not your job, make sure you report it!

Nobody is more familiar with a truck's special behavior than the guy who drives that truck. Although regularly scheduled maintenance services will catch most troubles early, operation in tropical conditions puts a big job on the driver to notice and report problems.

Even if you're not assigned to the same truck regularly, it's your baby while you're the operator. Make sure it's in top shape for the next guy—you'd expect him to do the same for you.

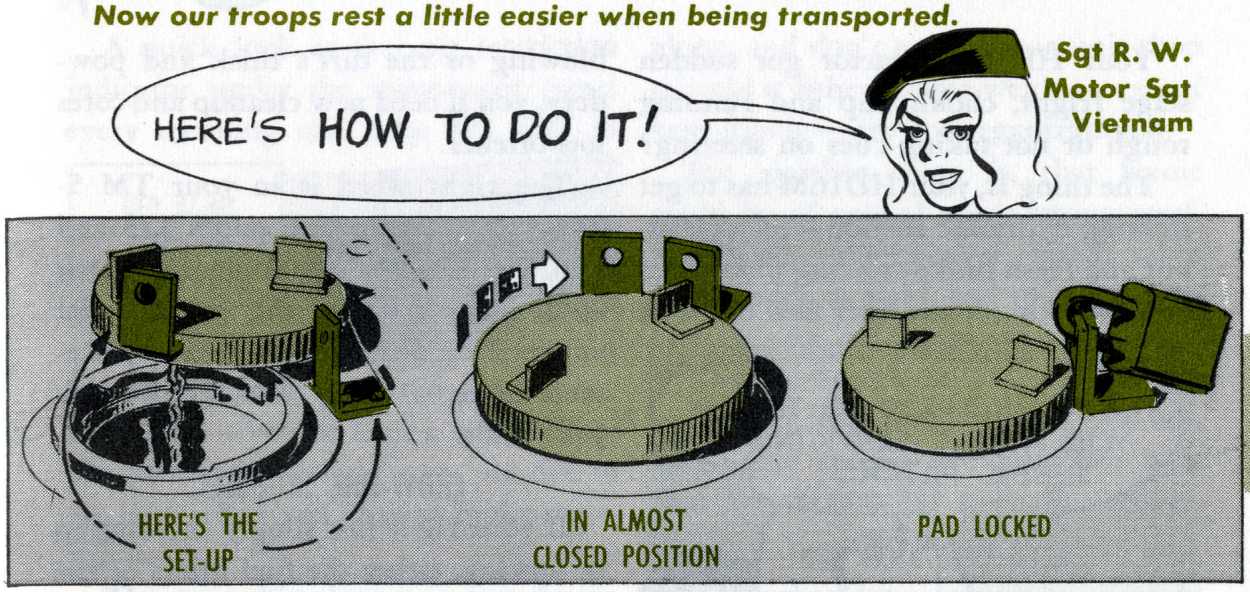
Dear Editor,

Charlie's deadly trick of dropping a rubber-banded hand grenade with its pin pulled into our fuel tanks was finally stopped. As you probably heard, this type of delayed action bomb blows up some time later after the fuel dissolves the rubber and lets the grenade handle fly off.

Our "solution" was made with 2 pieces of ¼-in angle iron and a padlock. We put angle iron on the gas cap and gas tank strap like this.

Now our troops rest a little easier when being transported.

Sgt R. W.
Motor Sgt
Vietnam



(Ed Note—The savings on just one blown truck would pay for a whale of a lot've cap locks.)

STAY AWAY

A big bang brings crowds. Just make sure you don't join the crowd when there's been a VC-made explosion in your area. Charlie has the friendly habit of setting up a second charge to go off about the time all the curious knuckleheads gather to see what happened on the first explosion. **Get it?** Stay away and you won't.

HD16Ms GET LAZY . . . FILTER WORKS

Your HD16M Tractor got sudden stage fright, chokin' up and running rough or not taking cues on steering?

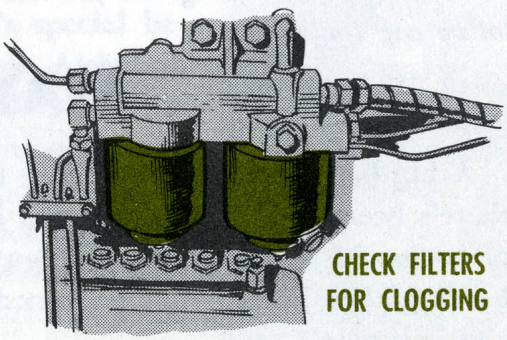
The thing is, your HD16M has to get steering hydraulic suction screen clean-out and fresh brake-steering filter cores at 50 working hours after new break-in

or major overhaul, and every 1,000 hours after that. But if you've been working where there's lots of dust blowing or the dirt's thick and powdery, you'll need new cleanup and cores lots oftener.

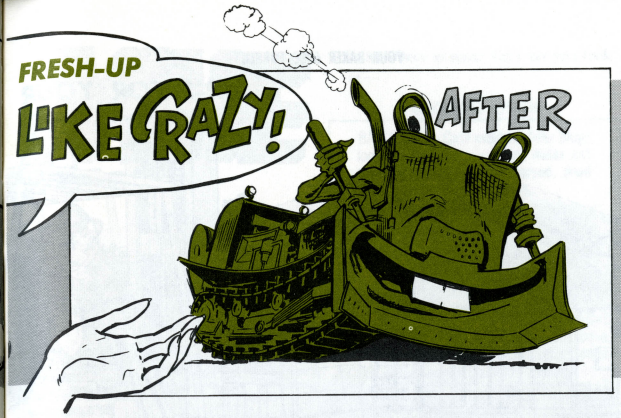
The right word is in your TM 5-2410-209-12 (Sep 65), pages 123 and 126, Fig. 64. But just don't jiggle that adjusting screw on the brake relief valve. That's there for parts replacement or repairs only. Best check — it's your neck.

CHOW-LINE TROUBLES

If your rig is just simply choking up or jerking, either the fuel filters or the air cleaner element could be clogged up.



CHECK FILTERS FOR CLOGGING



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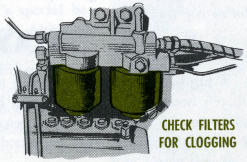


A quick look at that air restriction indicator under the instrument panel every morning can help. It's easy to

forget. But if it turns red — so's your face. Unless you've kept a good schedule on that air cleaner core, put one in anyhow when you change brake-steering insides.

The other bit players in this drama could be your fuel filters. They're twins, and after a wash-out on No. 1 and an element change on stage 2, you'll need one more check.

What you're looking for here is any fuel-line leaks, with diesel juice seeping out.

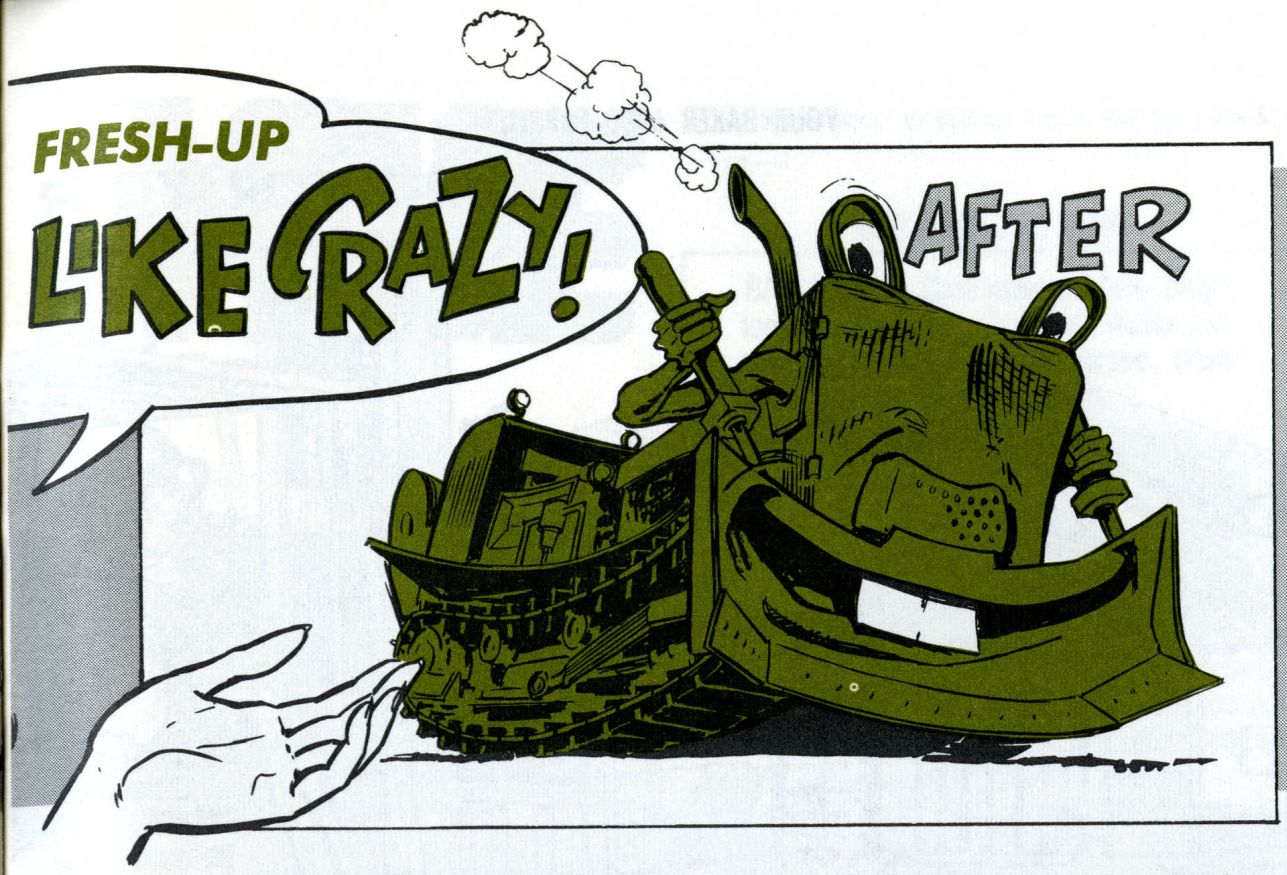
If you should get into heavy trouble and crack a frame on that rig, leave it alone, and don't expect your unit shop to weld it either; frame welds — except very minor — are not organizational.

But another thing is, that frame could be of special triple-strong steel. Wonderful weight-saver, but it takes special rods to weld, and special know-how. It's no job for amateurs.

That steel might be T-1, and it has to be babied, like not letting it get hot, and using special low-hydrogen rods that are 90,000-PSI strength or over.

THAT ROCK SPILL-OVER

One other type trouble you could have is rocks racking your tilt cylinder. A recent pub, MWO 5-2410-209-30/1 (Jun 66) can help you. Use the kit, MEC Stock No. 2410-B00-0232. And if you've heard some guys say to switch the tilt cylinder and tilt brace, nix — that makes top-shelf Engineer types apoplectic. Besides, the guide plates in the MWO do a better job.



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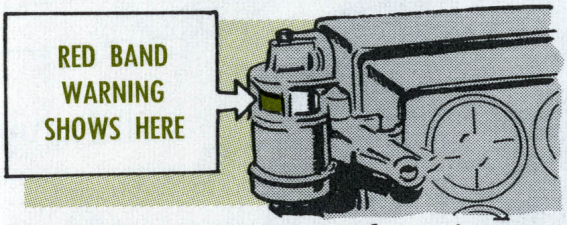

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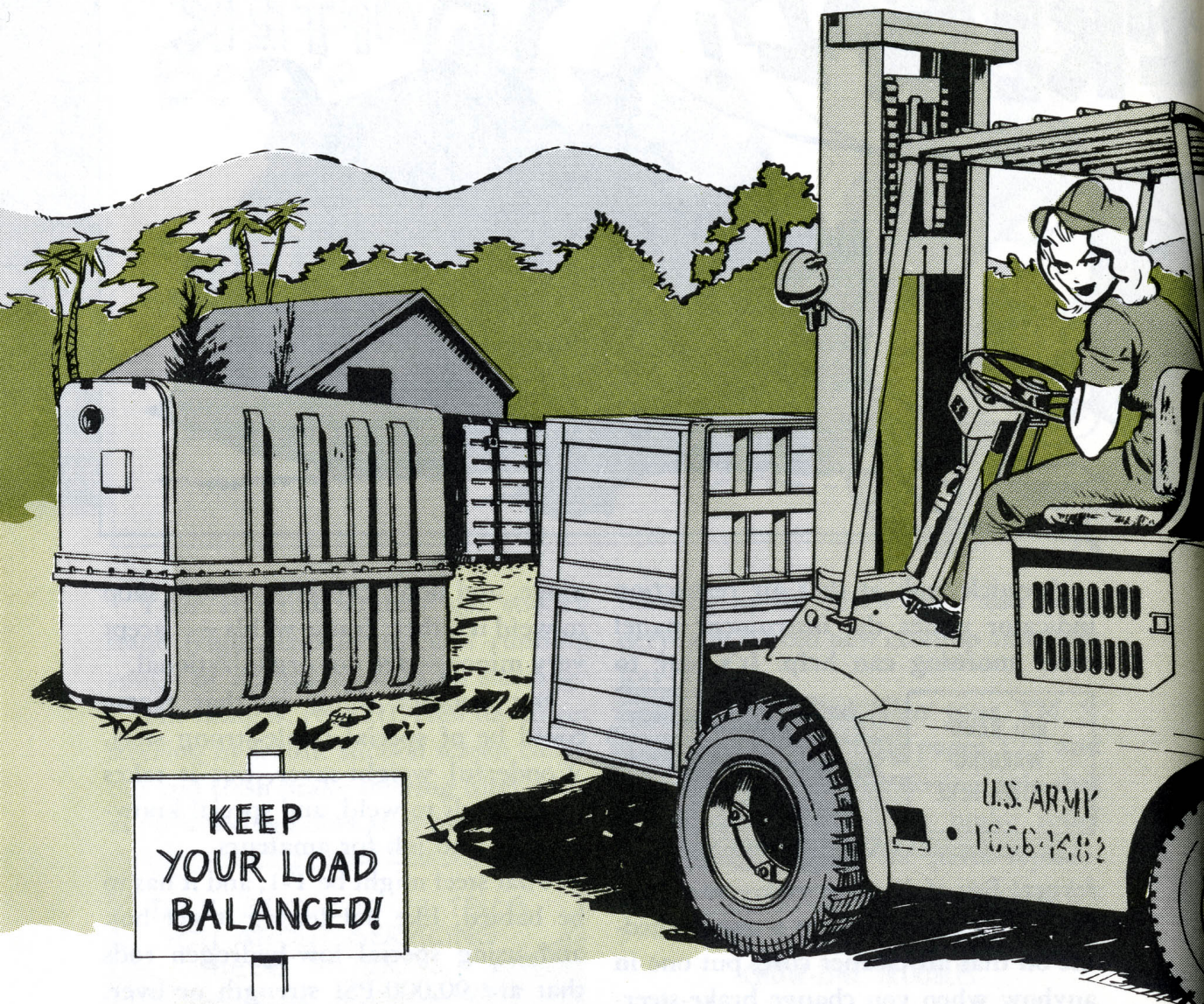
YOUR BAKER 6000 FORKLIFT . . .

1-2-3 FOR YOUR



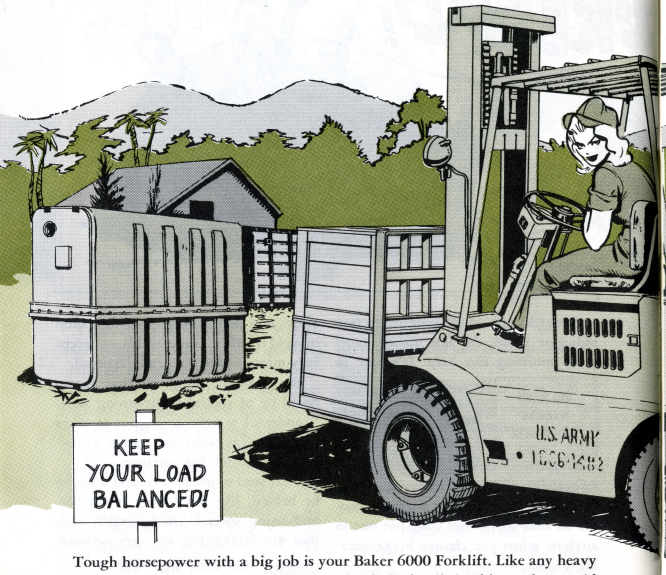
Tough horsepower with a big job is your Baker 6000 Forklift. Like any heavy MHE, it'll work better if you're on the ball for little things that could cause big trouble later. That on-the-ball bit you might call Continuous PM, or Running PM. As a headache-saver, it's tops.

Running PM means every time you work, stop, or just stand by, you check something. That way you cover the whole rig in two or three days and you know 'way ahead before small defects grow into big breakdowns.

Fact is, a sharp eye is one of the best PM tools in the kit. Like when you just walk up to go to work, you could look things over. To help you know what the CMMI's will kick about, deficiencies matched to guides in DA Pam 750-10 (Jun 66), the CMMI Handbook, are **in bold type.**

YOUR BAKER 6000 FORKLIFT . . .

1-2-3 FOR YOUR MHE



Tough horsepower with a big job is your Baker 6000 Forklift. Like any heavy MHE, it'll work better if you're on the ball for little things that could cause big trouble later. That on-the-ball bit you might call Continuous PM, or Running PM. As a headache-saver, it's tops.

Running PM means every time you work, stop, or just stand by, you check something. That way you cover the whole rig in two or three days and you know 'way ahead before small defects grow into big breakdowns.

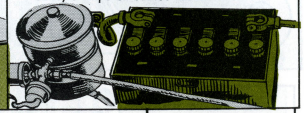
Fact is, a sharp eye is one of the best PM tools in the kit. Like when you just walk up to go to work, you could look things over. To help you know what the CMMI's will kick about, deficiencies matched to guides in DA Pam 750-10 (Jun 66), the CMMI Handbook, are **in bold type.**

Deficiencies, you know, have to be fixed before operating; shortcomings and suggested improvements you get corrected on scheduled service periods.

So where to start? Let's say you look at—

ELECTRICAL SYSTEM

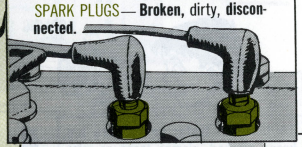
BATTERIES— Case **cracked,** filler plugs loose or missing, corroded, **water not covering plates, poles reversed, dead cells,** clamps or cables **loose.**



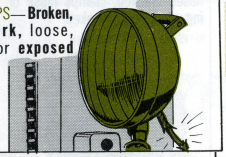
SWITCHES— **Loose,** wires or mounts **loose** or **broken,** wet.

DISTRIBUTOR— Cap **cracked,** mount loose, wet case, cables **loose,** shields missing.

SPARK PLUGS— **Broken,** dirty, **disconnected.**



HEADLAMPS— **Broken, won't work,** loose, cracked or **exposed** wires.



HORN BUTTON— Stuck, **missing, shorted out.**

MORE

MHE

So where to start? Let's say you look at—

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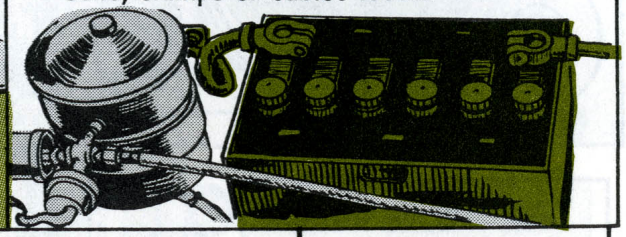

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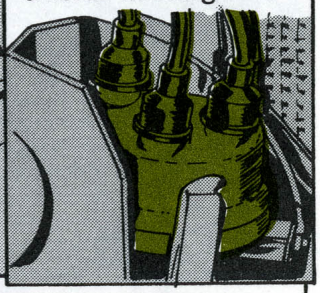
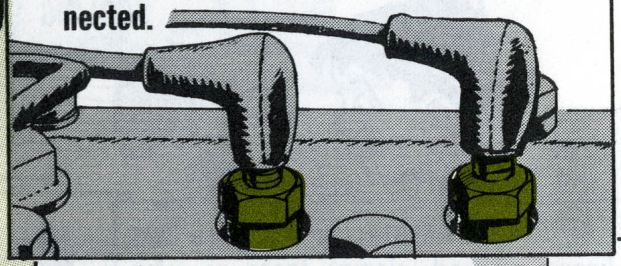


SPARK PLUGS— **Broken,** dirty, **disconnected.**



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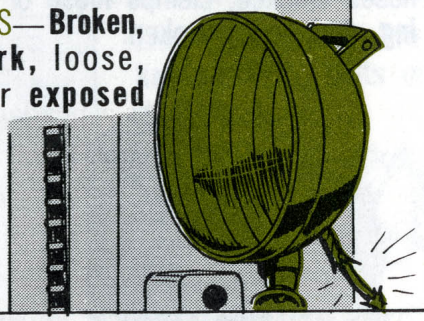
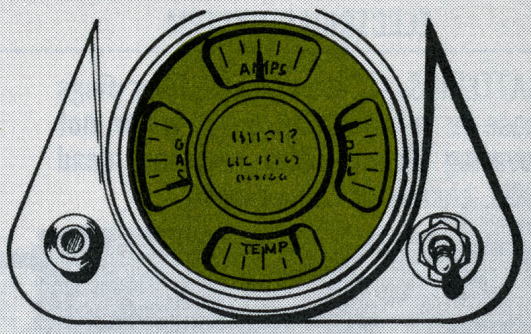


HORN BUTTON— Stuck, **missing, shorted out.**

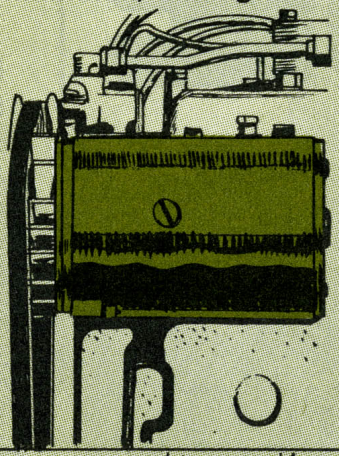
Deficiencies, you know, have to be fixed before operating; shortcomings and suggested improvements you get corrected on scheduled service periods.

P.S. MORE

GAGES — **Not working,** glasses cracked, needles **broken.**

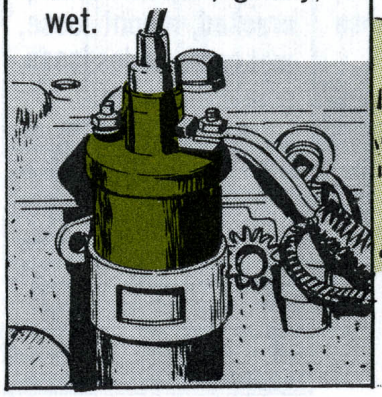


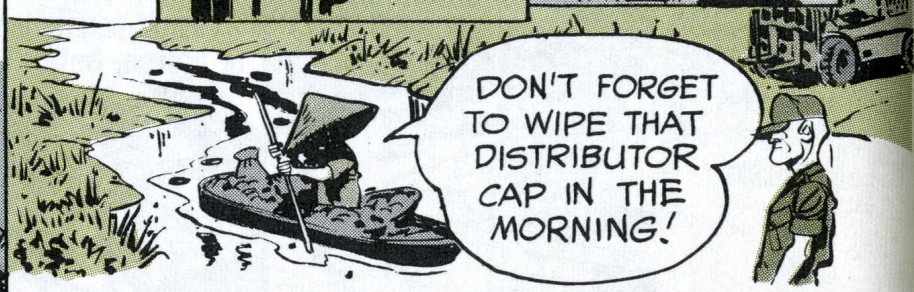
GENERATOR — **Not charging, voltage regulator kaput,** leads **cracked, missing.**



STARTER — Loose or dirty connections, **faulty operation.**

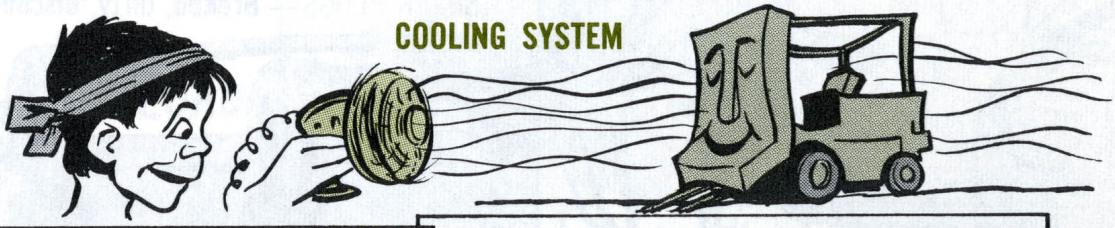
COIL — Wires **loose,** case **cracked,** greasy, wet.



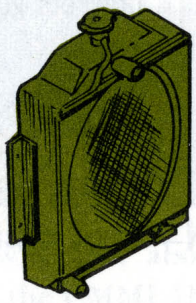


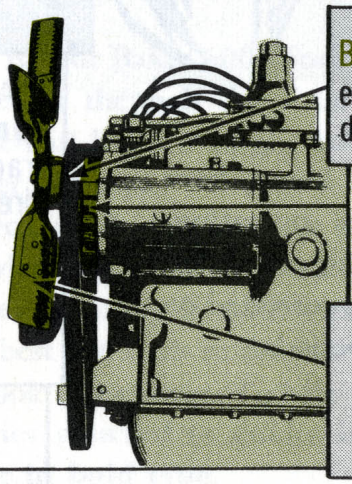
In damp, humid places you'll want to wipe out that distributor cap — it collects moisture while parked over night and won't let you start.

COOLING SYSTEM



RADIATOR — **Water below core top,** hoses cracked, clamps **loose** or **missing,** drain cock broken.

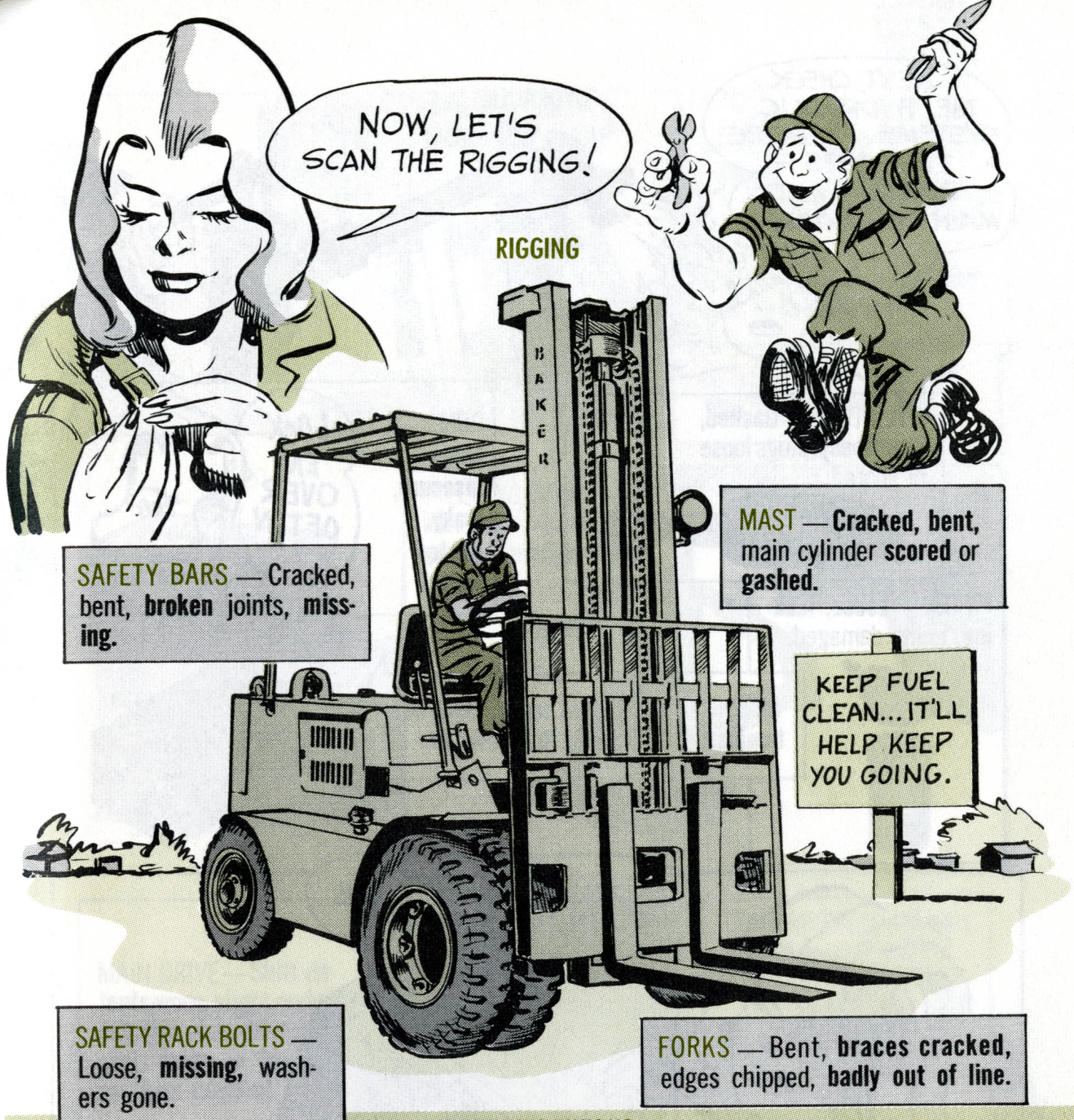




BELTS — Frayed, cracked, **badly worn, missing,** deflection over ½ inch.

WATER PUMP — **Leaky,** impeller **stuck,** shaft **wobbly.**

FAN — Blades bent or **hitting core or guard,** pulley chipped or broken.



RIGGING

SAFETY BARS — Cracked, bent, **broken** joints, **missing.**

MAST — **Cracked, bent,** main cylinder **scored** or **gashed.**

SAFETY RACK BOLTS — Loose, **missing,** washers gone.

FORKS — Bent, **braces cracked,** edges chipped, **badly out of line.**

MISCELLANEOUS

MOTOR MOUNTS — Too tight, **bolts out,** less than ½-in free-play. (This one you need to watch — that engine hasta have elbow room).

LUBE POINTS — Fittings missing, broken or plugged.

FIRE EXTINGUISHER — **Missing,** seal broken, charge low or **lost.**

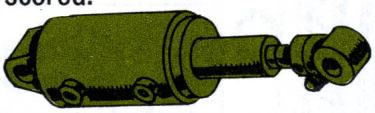
EXHAUST — **Leaky, broken manifold,** bolts or brackets gone.

MORE

HYDRAULICS

NEXT, CHECK THE **HYDRAULIC** SYSTEMS. THERE'RE TWO SETS— **BRAKES** AND **MAIN OPERATING.**

CYLINDERS—**Gashed,** seals **leaky,** plugs loose or scored.

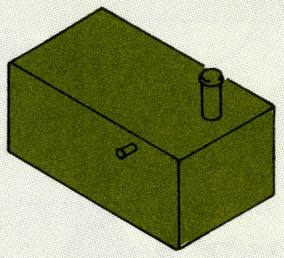


PUMP—**Lines insecure, leaky, dented** walls.

LOOK 'EM OVER OFTEN!

FILTER—**Loose, leaking,** joints damaged.

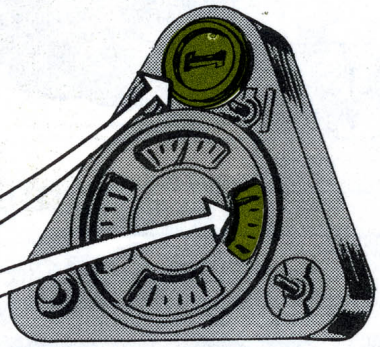
TANK—**Leaky,** mount loose, **fluid contaminated,** lines bent, fluid level low.



AND NOW...ON WITH THE **RUNNING GEAR.**

HOURMETER—**Not working.**

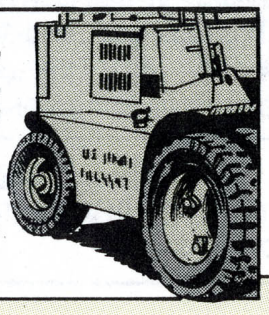
OIL PRESSURE—Not up to between 25 to 35 PSI.

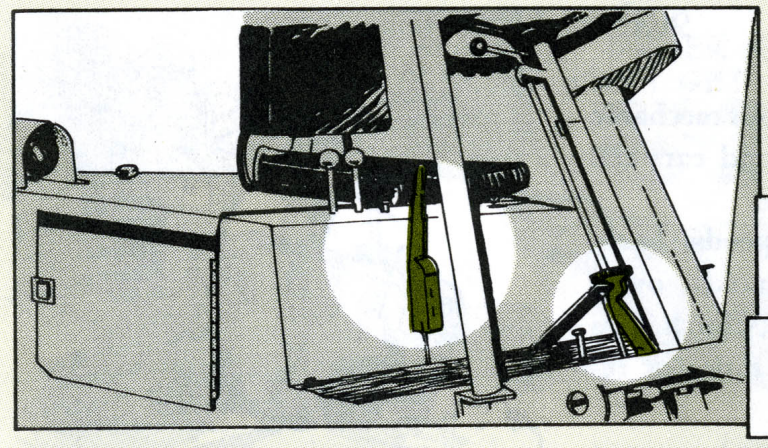


GAS PEDAL—**Sticking,** loose, spring **broken, pin out.**

TIRES—**Tread gone, rubber cut through,** punctured, **flat,** low pressure.

WHEELS—**Loose** lugs, rims **badly bent.**

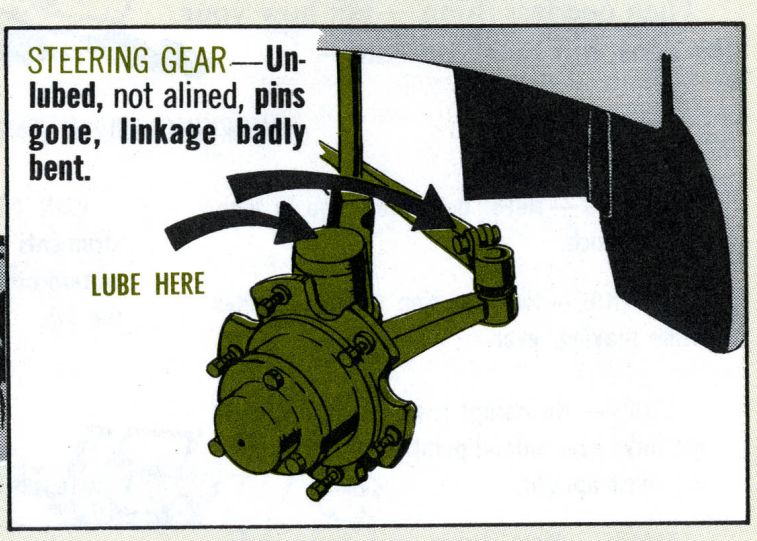




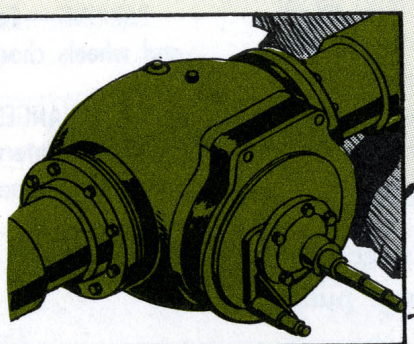
SERVICE BRAKE — **Sticking, over ½-in play,** soft.

HAND BRAKE — **Broken, won't lock, won't hold.**

STEERING GEAR — **Unlubed,** not alined, **pins gone, linkage badly bent.**



MAIN DRIVE — Shift detents worn, slight nudge engages gear, drive axle seals **leaky** or **broken,** castings **cracked.**



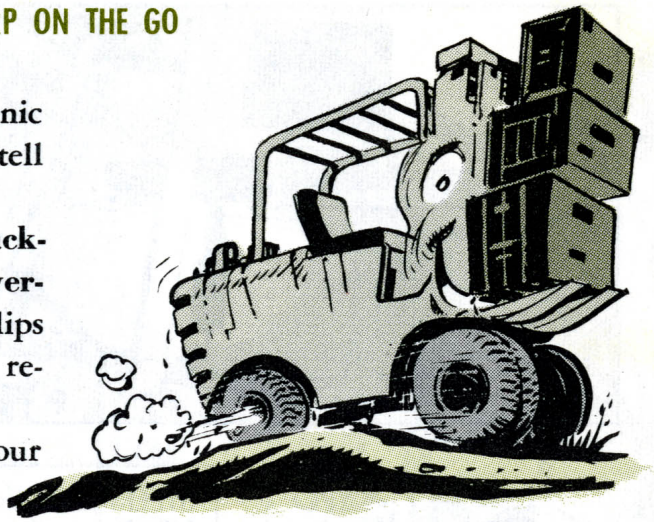
TRANSMISSION — Leaks, low oil level.

CHASSIS — Bolts **gone,** springs **broken, unlubed.**

DAILY CHECK — Crankcase oil and gas OK.

PS MORE

SHARP ON THE GO



A call has to go to your unit mechanic but fast when your eyes and ears tell you the Baker's going sour.

If, f'rinstance, it **overspeeds, backfires, bucks** and **jerks**, smokes, **overheats** oil or water, knocks, clutch slips or **creeps** in neutral, it's time for repairs.

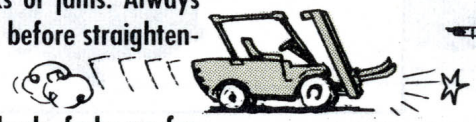
Then one last thing — not how your lift runs, but how you run —

WORKING HORSE SENSE

LOADING — Never butt into cargo or take on too much.

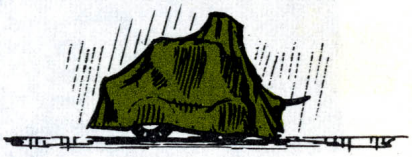
SHIFTING — No direction lever changes while moving, ever.

STOPS — No abrupt jerks or jams. Always get forks over unload point before straightening mast upright.



TRAVEL — Mast always back, forks up for clearance, and sharp eyes for other people. On ramps or with bulky loads, always travel in reverse. Use ramps, don't jump a curb, railroad tracks, deep ruts and holes, or you'll bust an axle.

RAIN COVERS — Protect switches and instruments outdoors always — they're not waterproof. Canvas or an old poncho will do the job.

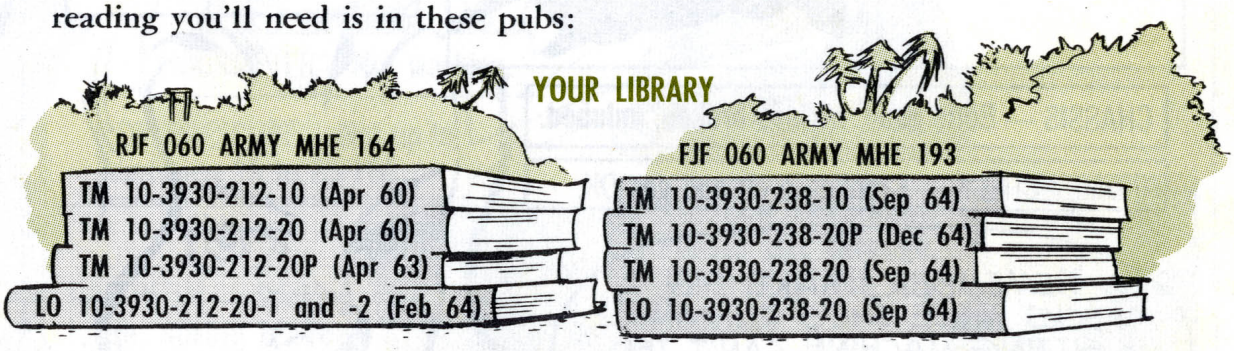


PARKING — Fork down, brake on good, and wheels chocked on slopes.

TIRE CHANGES — Never jack under the 5,000-lb counterweight; it'll fall on you. Get jack under frame or axle instead.

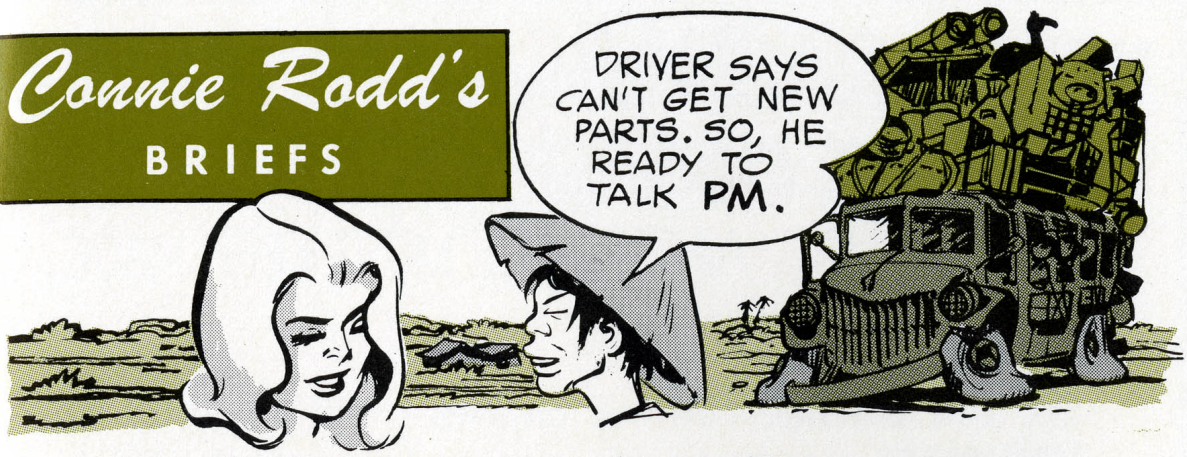
Now, anything you don't see here is probably in the library — and the good reading you'll need is in these pubs:

YOUR LIBRARY



That's about it, except for one thing you won't find in the pubs — which is that your whole job is getting stuff to guys up the line. The payoff on the way you work is battlefield firepower.

Connie Rodd's BRIEFS



Get Air Filter

Dirt has a way of seeping inside your Bird Dog (O-1D, E, F, G) engine cowling and fouling up the works . . . a pretty good reason why you want to filter it out of the carburetor induction warm air mode. Check with direct support to see if they have the kits to put on the alternate induction air filter as called for in MWO 55-1510-202-30/4 (22 Nov 66) . . . soonest.

A Natural Bloom

Your M17 field protective mask is not supposed to have a **shiny, black** face blank. So you needn't fret about the powdery stuff (crystalline bloom) you find on the rubber surface. The bloom comes from a built-in preservative used in the rubber. Inspector-types know the bloom is not a defect. Ch 2 (16 Mar 65) to SB 3-30-26 set the record straight on the bloom.

Get Your MWO Index

The new Index of Modification Work Orders is DA Pam 310-7. To get your outfit on pinpoint distribution, send a DA Form 12-4 to the Army Publications Center, Baltimore, like it says in DA Circular 310-29 (7 Mar 67).

FLASH! ATTENTION! NOTE!

105-MM GUNNERS: HEED!

Hold it there, you gunners on 105-MM Towed M102 and Self-Propelled M108 Howitzers!

DON'T — LIKE NEVER — USE THE M49 EXTRACTOR-RAMMER TOOL TO SEAT A ROUND UNLESS IT'S BEEN FIXED ACCORDING TO THE TWX-AWC TT 8172 (22 MAR 67).

Word's been flashed to get your mechanic to spotweld a 1¼-in plug (made out of 2-in cold rolled bar stock reduced to 1.615 minus .005, leaving a ⅜-in shoulder) in the cylindrical end fulcrum — opposite the cutaway clearance. This will let the fork straddle the primer just right.

This fix will do till an MWO comes out to take care of it.

Would You Stake Your Life right now on the Condition of Your Equipment?

WHERE NORMAL CONDITIONS ARE UNUSUAL...

PREVENTIVE MAINTENANCE MUST KEEP PACE.

So, the **USUAL** routine chores must become an **UNUSUAL** program of care and constant checking. **USUAL** things like lubes, seals, paint, coolant, cleanliness, tight connections and careful handling become the **UNUSUAL!** So . . .

GIVE YOUR EQUIPMENT UNUSUAL CARE!!

SEE THE "UNUSUAL CONDITIONS" SECTION IN YOUR OPERATOR'S MANUAL